Today's Way to Handle People...page 38

TEXTILE WORLD

JULY 1961
PRICE $1.00

A McGRAW-HILL PUBLICATION

An Inside Look at Shuttleless Looms
What they cost
How they perform
page 30

This Spinning Mill Doubled Its Size In the First Year
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This Saco-Lowell Rovematic Frame is now in operation in one of the nation's most modern textile plants.

Saco-Lowell's New Rovematic Increases Roving Output by 60%... Cuts Operating and Maintenance Cost Even More

Orders are being taken now by Saco-Lowell Shops for fall delivery of Rovematic Roving Frames. An entirely new concept that breaks with the past, Rovematic delivers a 14" x 7" package of superior roving with a flyer speed of 1,200 R.P.M. maximum and a front roll (1⅛") speed of 350 R.P.M. maximum.

Rovematic is specifically designed to set new industry standards. On the basis of actual mill experience, the production of 8 Rovematic frames has been equal to 13 conventional frames. Rovematic makes obsolete the heavy traversing carriage, cones, and all related mechanisms.

Built for Better Performance. Utilizing the FS-2 drafting system with Tru-Set weighting, Rovematic is easy to operate. Its unique telescoping spindle permits quick doffing without removal of the dynamically balanced flyers. Because its major components are enclosed in sealed cases and run in oil baths, with all change gears grouped together, Rovematic is the cleanest and the easiest-to-operate frame available.

Backed by Better Service. Behind the Rovematic, as behind all Saco-Lowell textile machines, lies a two-fold purpose: to give you the equipment and assistance you need when you need it... and to add to your profits through lower cost. Call in our nearest Sales Engineer today.

SACO-LOWELL SHOPS

TEXTILE MACHINERY DIVISION

EXECUTIVE OFFICES: DRAWER 2327, GREENVILLE, S.C.
SALES OFFICES: ATLANTA, GA.—805 PEACHTREE ST., N.E.
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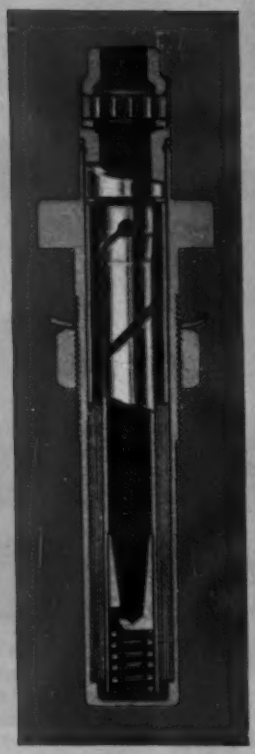
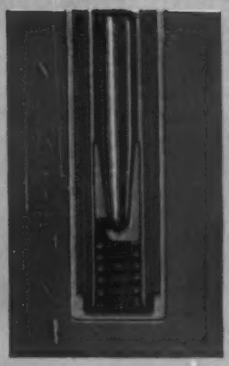


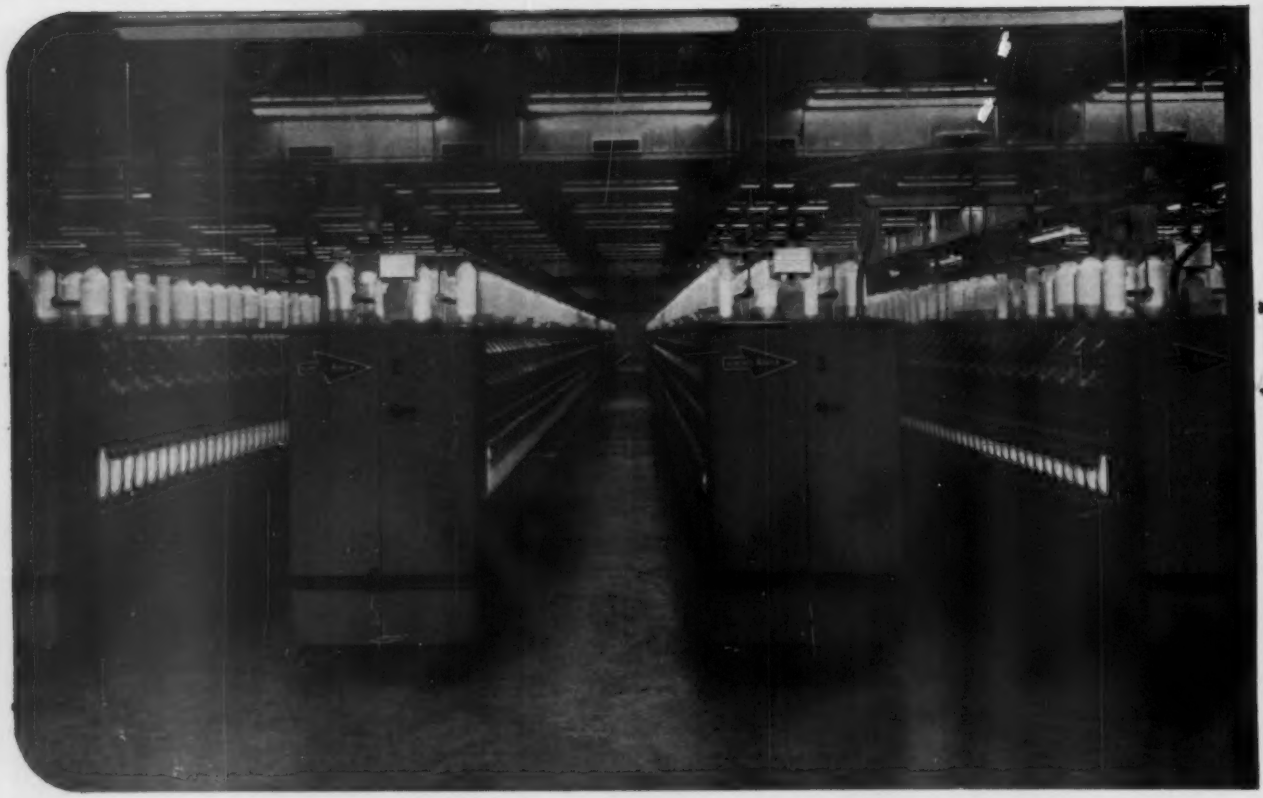


DA42

The Draper DA-4-2 Anti-friction Spindle is designed to run at higher speeds with heavier loads and lengthened oiling cycles. This spindle can be furnished to handle a full range of counts in both filling and warp yarns. The DA-4-2 Spindle features a one-piece steel base and a roller bearing bolster with coil spring dampening action. For the finest in spinning combinations, specify — Draper Bobbins, Rings and Spindles. For information, consult a Draper representative.

DRAPER CORPORATION

HOPEDALE, MASS. • ATLANTA, GA. • GREENSBORO, N.C. • SPARTANBURG, S.C.



▲ **ROBERTS ARROW SPINNING** for both cotton system and long fiber system yarn spinning for natural and synthetic fibers and blends. High speed, all ball bearing, big package Arrow Spinning Frames in 25-inch or 36-inch width. Exceptional flexibility and simplicity of operation in the manufacture of improved quality yarns at reduced costs and modest initial investment. Choice of drafting systems, including FC Pendular Drafting and PermaSet Drafting.

ROBERTS TOW TRANSFORMER combines in one machine the two major tow processing operations – converting and high bulking, as well as ParaDrafting. Versatility and high productivity in transforming normal tops from normal tows, heat-stretched and high bulk tops from normal tows without second operation heat relaxing, and high bulk tops from two-component tows. Cuts 2½" to 8" lengths. Optional heat-stretching. 2 million denier infeed. ▼

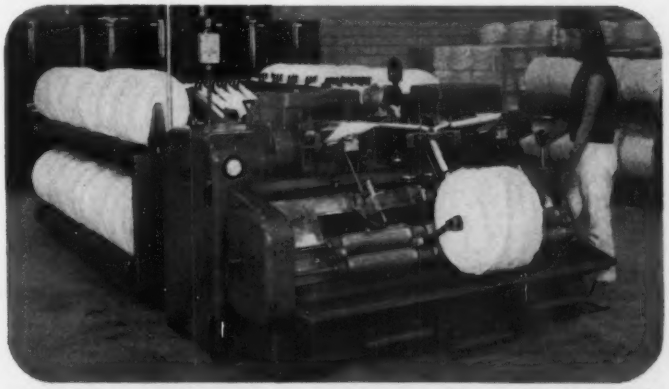
ROBERTS

Yarn Making Machinery

FOR COTTON, WORSTED, OR LONG FIBER SYSTEMS

ROBERTS ROVING FRAMES are ball bearing rebuilt and feature all-new heavy duty ball bearing Roberts Double Apron Drafting Systems for cotton, short staple or long fiber synthetics, worsted and blends. 10x5 and 12x7 packages. Provisions for double headed spools.

ROBERTS TWISTERS for plying yarns are completely ball bearing equipped and designed for high speed ring twisting operations. 25- or 36-inch frames. Up to 4-inch rings and 12-inch bobbins. Package weights 1¼ pounds on cotton, ⅞ to 1 pound on worsted.



ROBERTS worsted system preparatory machines, which include ParaBlenders, ParaDrafters and AutoEveners, are rugged, high performance machines for pinning, parallelizing, drafting and blending worsted and synthetic fibers prior to roving and spinning, and in top making plants. AutoEvener automatically and instantaneously corrects delivered sliver weight to within plus or minus 1%.

Simplicity of design, rugged construction and high speed ball bearing operation are the hallmarks of all Roberts Company machinery. Roberts also supplies rebuilt spinning frames and modernization changeovers for mills' existing machinery.

ROBERTS COMPANY

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Coming Next Month:

What the Foam Laminate Field Holds for You

If you're thinking about expanding into the foam-laminates business, **August TEXTILE WORLD** will bring you a complete rundown on (1) the present state of the art in this new field, (2) technical and operating problems, and (3) the market outlook. Also in August, you'll learn how one company stretched its modernization dollars to get the highest efficiency at the lowest cost.

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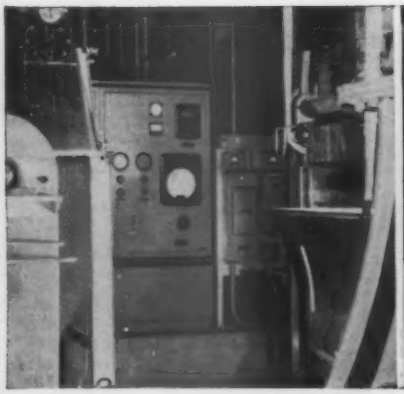
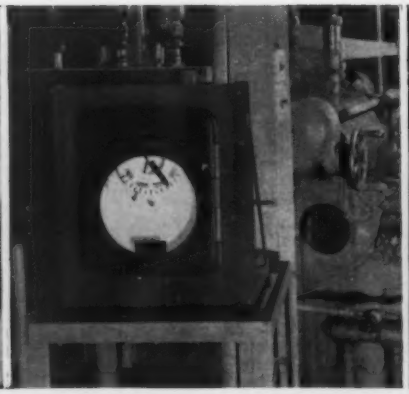
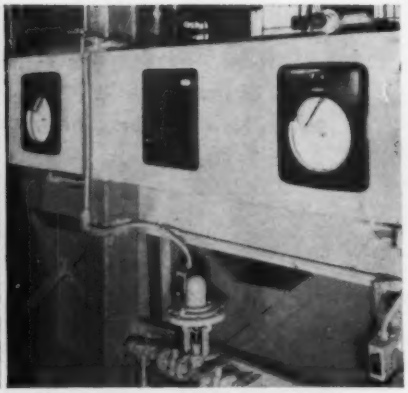
Conductivity, Redox, Foxboro Dynalog* record and control



Conductivity Control— This mill uses a Dynalog electronic Concentration Controller to hold souring bath acid strength within ±0.025% concentration of sulphuric acid. Controller has a range of 0 to 2.5 percent sulphuric acid. Operation is simple. Operator sets desired acid strength on the controller and walks away. Foxboro does the rest — automatically and continuously feeding a smooth flow of acid to the bath. Write for a copy of data sheet 220-181.



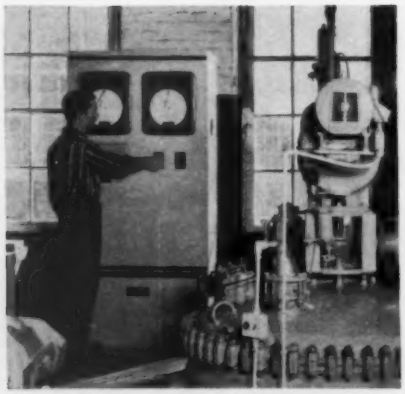
Redox Measurement—One example of the importance of Redox measurement and recording is seen on this continuous dyeing range. A Foxboro Dynalog continuously measures, indicates, and records oxidation reduction potential in Williams Unit, resulting in better shading at higher temperatures and speeds, savings in Hydro and other reducing agents, plus other important advantages. Write for copy of Bulletin 19-12.



pH Control — This large bleachery finds that relatively minor variations in pH affect the efficiency of final neutralizing of cotton cloth. pH Controller (right) continuously measures bath pH — operates valve in the incoming aqueous ammonia line to keep solution at optimum pH. Write for data sheet 220-32.

**Reg. U. S. Pat. Off.*

pH, Viscosity... instruments let you them all...



Viscosity Control—This finishing mill counts on a Dynalog Viscosity Recorder and Dynalog pH Recorder to insure perfect repeatability in the "batching" of urea-formaldehyde resin. Viscosity transmitter spindle, rotating in resin solution, transmits a continuous electronic signal directly proportional to the centipoise viscosity of the resin. Recorder tells when corrective action is required — prevents batch from being ruined. Write for data sheet 220-210.

continuously, automatically... and with minimum maintenance

You'll find Foxboro Dynalog Electronic instruments handling complex measurement and control tasks everywhere in the textile industry.

Dynalog instruments give higher sustained accuracy and greater freedom from maintenance than conventional potentiometers. That's because the Dynalog design has no slidewire. Instead a simple, variable radio-type capacitor, with silent magnetic drive, gives stepless continuous balancing, smooth faster response without waste motion or wear. In addition, Dynalog instruments are free of drift — require no standardization, lubrication or alignment.

Investigate sensitive Dynalog recorders and controllers. They can be used for any electrical measurement . . . resistance, voltage, capacitance. Write for Bulletin 20-10 and detailed engineering data sheets. The Foxboro Company, 847 Neponset Avenue, Foxboro, Mass.

Typical Dynalog Applications in the Textile Industry

- Chemical dilution of acetic, sulphuric, and muriatic acids; caustic; hypochlorite; and others
- Dye kettles
- Continuous dyeing
- Resin batching
- Wool shrink proofing
- Desizing and bleaching
- Thread bonding
- Souring and causticizing
- Carbonizing
- Coating machines
- Condensate return
- Water and waste treatment
- Sizing Plissé machines

FOXBORO

REG U S PAT OFF

CIRCLE 7 ON READER SERVICE CARD

Spin top-quality yarn with Armstrong Accotex roll covers and aprons

Smoothness . . . uniformity . . . strength: these are the marks of quality yarn. And they depend, to a large extent, on the performance of your spinning cots and aprons.

To keep yarn quality high, hundreds of mill men specify Armstrong Accotex cots and aprons. They know that Accotex products provide the smooth drafting action and superior yarn control so necessary to production of quality yarn.

And these men also know that their Armstrong representative can make dependable suggestions on practically any roll covering and apron problem. Armstrong Cork Company, Industrial Division, 6407 Dauphin Street, Lancaster, Pennsylvania.

Taylor Weaver and Archie Cox, Overseer of Carding, checking the Accotex J-490 covers used on this drawing frame.

Jack Radford is in charge of the roll shop. Here he discusses operation of this Armstrong Model "J" buffing machine with Weaver.

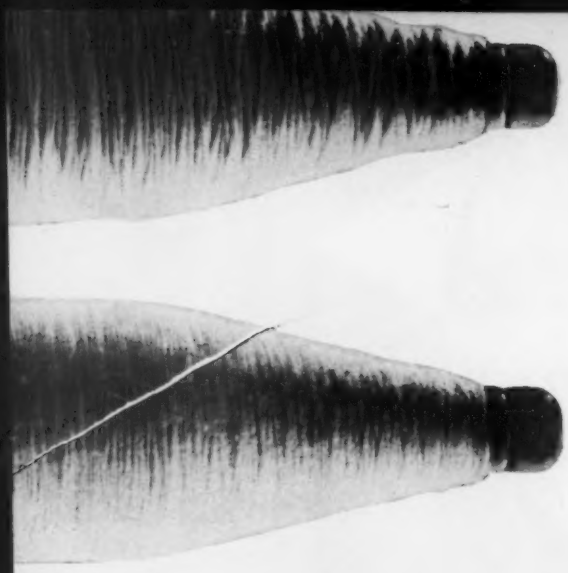
L. T. Embler, Superintendent of this Abney Mills plant, discusses spinning characteristics of a new Accotex roll covering with Weaver.

H. C. Thrasher, right, Overseer of Spinning at the Abney Mills plant in Anderson, South Carolina, discusses performance of this new spinning frame with Armstrong representative Taylor H. Weaver. Frame is equipped with Accotex NO-728 front line cots, NC-729 cots on the back line, and NO-7075 aprons.

Armstrong ACCOTEX COTS AND APRONS

CIRCLE 9 ON READER SERVICE CARD

Now



UNIFIL®

features 8¾" quills for cotton weavers

The 8¾" quill UNIFIL developed specifically for the cotton mill is another example of how Leesona's applied textile knowledge leads to textile machinery that improves manufacturing, reduces costs and results in higher quality fabrics.

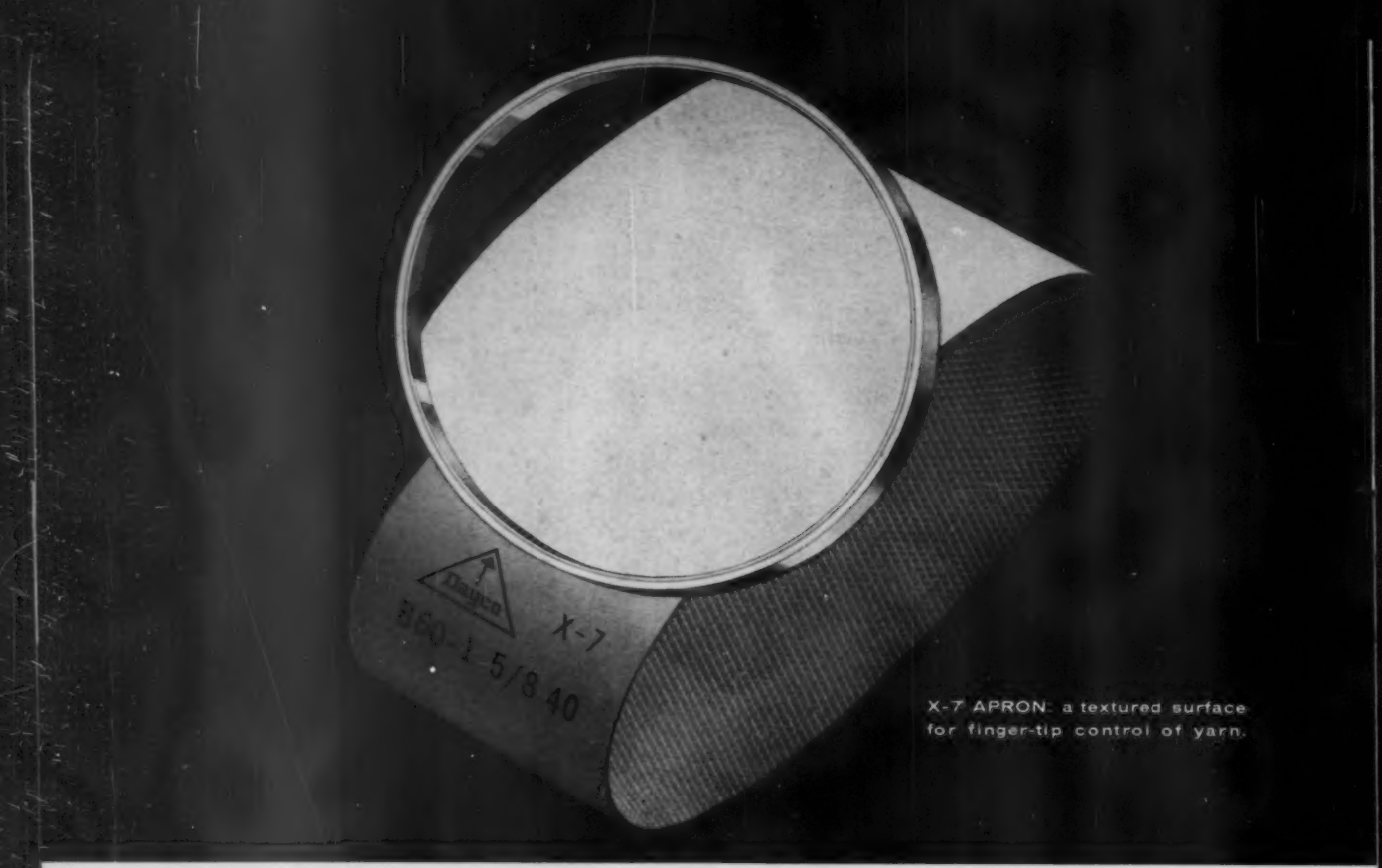
Call your nearest Leesona Sales Engineer — in Boston, Philadelphia, Charlotte, Atlanta or Los Angeles. Or write LEESONA CORPORATION, P. O. Box 6088, Providence 4, Rhode Island.

LEESONA

Leesona Leads to Better Fabrics

CIRCLE 11 ON READER SERVICE CARD

23.1.39



X-7 APRON: a textured surface for finger-tip control of yarn.

X-98 COT: outstanding anti-static properties at top temperatures.

X-35 COT: a positive grip that breaks up surface tension.

New Ingredients and Special Surface Texture Make These Dayco Aprons and Cots Superior

Cash outlay for aprons and cots is but a small part of the cost involved in the spinning operation, yet use of the right apron and cots combination can do much to increase efficiency. Before you place your next order, add to your file of information on superior aprons and cots these facts about the new Dayco X-7 apron . . . Dayco's X-35 and X-98 cots:

FINGER-TIP CONTROL OF FABRICS

Dayco's X-7 apron, readily identified by its pink color and triangle imprint, has, as the micro-photo inset makes clear, an amazing skinlike surface that permits unusual control of fibers of every type. And the X-7 combines with its efficient handling of fibers many other qualities equally important.

It offers exceptionally high resistance to ozone checking as well as lengthwise cracking caused by flex. Its resilience and sturdiness are equally impressive, enabling the Dayco X-7 to meet, fully and satisfactorily, the demands of modern drafting.

POSITIVE GRIP FOR BETTER DRAFTING

Visual inspection of Dayco's X-35 cot, intended primarily for use on the back line, reveals that it contains somewhat finer particles of material than are usually found in cots of medium Shore hardness.

Many such cots, because of their larger cell structure and comparative softness, lack sufficient tensile strength. But Dayco's X-35 does not. While providing a positive grip that breaks up surface tension, it also meets all other standards of fine performance.

NEW INGREDIENTS PERFECTLY COMBINED

Like Dayco's X-7 apron, the X-98 cot, recommended for front-line use, derives its superiority from a new formulation. The anti-static properties retained by the X-98 even at high temperatures deserve special mention. Its durability is also noteworthy, as is the top-quality yarn it helps deliver.

Originally developed to meet the problems of a particular mill experiencing heat build-up, the X-98 is typical of Dayco's approach to customer service. Demand for the X-98, as word of it traveled from mill to mill, has made it an important new item in Dayco's complete line of cots.

GO DAYCO ALL THE WAY

Whether a few, or whether hundreds of thousands of a product are marketed, Dayco research and quality control are constantly at work. A fine field staff stands ready to answer any questions you may have about the suitability of any Dayco product for a given assignment.

Put the best to work for you in the best possible way, with the help and advice of your Dayco representative! Phone or write Dayco Textile Products, 401 South Carolina National Bank Building, Greenville, S. C.; Overseas plant: Dundee, Scotland.

Dayco TEXTILE PRODUCTS

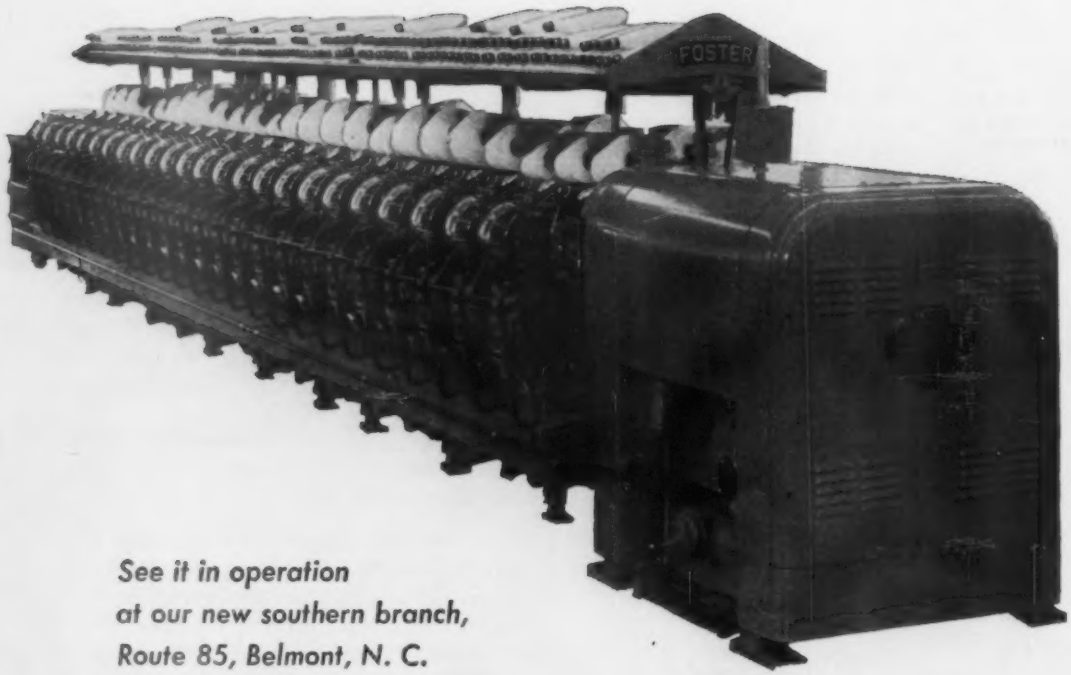
Divison of Dayco Corporation

CIRCLE 13 ON READER SERVICE CARD

Now Available! FOSTER MODEL 506

★ **Major Reduction in Operating Costs**

★ **Greatly Improved Yarn and Package Quality**



See it in operation
at our new southern branch,
Route 85, Belmont, N. C.

★ **SEEING IS BELIEVING**

See the Foster Model 506 Automatic Cone Winder in operation at our new southern branch, Interstate Defense Highway 85, at Belmont, N. C. and/or arrange to observe machine operating under mill conditions.

NEW SOUTHERN BRANCH ON ROUTE 85, BELMONT, N. C.

FOSTER MACHINE COMPANY

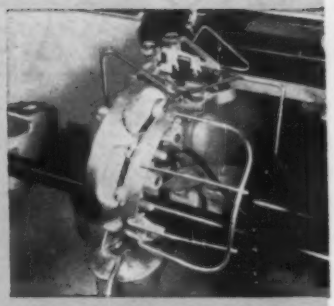
WESTFIELD, MASSACHUSETTS, U.S.A.

72-1

AUTOMATIC YARN WINDER

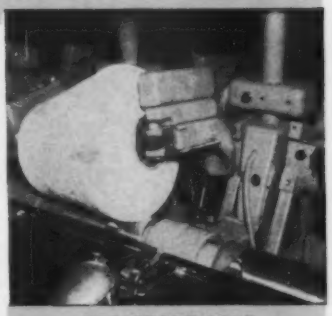
PRACTICAL AUTOMATION Automation of sales yarn winding equipment must be **practical.** By that we mean that the investment required by the mill must not be out of proportion to the return and that savings in winding costs must **not** be achieved **at the expense of yarn and package quality.**

This philosophy has inevitably led to a step-by-step process in the automation of Foster sales yarn winding machines: — first automatic slubbing and cleaning, automatic disposal of empty bobbins and automatic cone size indicator on our manual winders; and now, in addition, an automatic supply bobbin exchanger on the Model 506, plus a greatly improved cone size indicator. Donning and doffing of cones are still done by hand on the Model 506, because automation of these operations would not justify the expense.



ELECTRONIC TENSION & IMPROVED SLUB CATCHER

WHY NOT AUTOMATIC KNOT TYING? We have **not** made knot tying automatic on the Model 506, because we have proved, to our own satisfaction, that it can be done **only at the expense of yarn and package quality.** Automatic knot tying permits loose yarn (butterflies), tangles, bobbin rings, crossed ends, uneven package density and rough yarn, and these defects can be discovered only when it is too late. What price savings in winding costs, if they result in a loss at the market place?



FOOLPROOF CONE SIZE INDICATOR

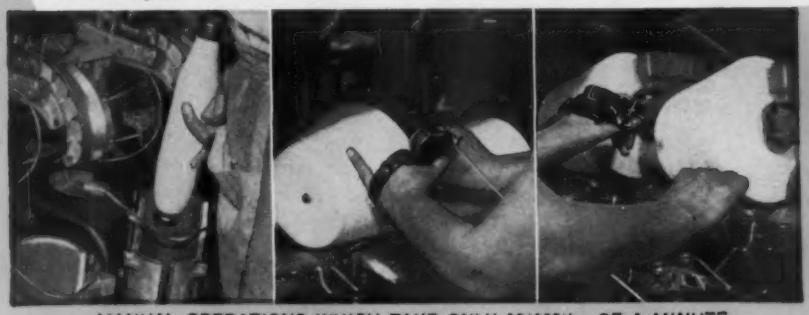
HOW WE SIMPLIFY HAND OPERATIONS Since certain operations in sales yarn winding must still be done by hand, it follows that they should be simplified for maximum efficiency. The donning and doffing of cones involve no problem. They have been as simple and easy as possible for a long time. The other hand operations, however, have presented an opportunity for improvement and we have reduced these operations to 3 simple movements: — 1. dropping the bobbin supply in a chute. 2. tying the knot with the left hand, by means of a high speed mechanical device. 3. instantaneous restart of the spindle with the right hand (see illustration). These 3 motions combined take only ten hundredths of a minute.

WHAT ABOUT QUALITY? The quality of Model 506 steep taper cones is even better than the quality of Model 102 cones (standard for the sales yarn market for many years). This quality results, not only from operator controlled knot tying, but also from an improved polydyne traverse cam, a larger diameter drive roll, compensating electronic tensions, new extremely efficient slub catchers, fool-proof cone size indicator and oil mist lubrication.

REDESIGNED YOKE & ALUMINUM BALL BEARING CONE HOLDER

WHAT ABOUT SAVINGS? The purpose of automation, of course, is to save money. How much does the Model 506 save? The Model 506 runs at speeds from 900 to 1000 yards per minute — about twice as fast as manual winders — and increases an operator's productivity at least 50%. These figures are not theoretical. They have been substantiated and documented in mill tests, under production conditions.

NOW AVAILABLE Early orders for the Model 506 are already scheduled for shipment starting Sept., 1961. There is still time to order machines for delivery later this year.

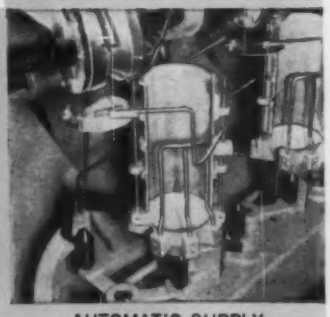


MANUAL OPERATIONS WHICH TAKE ONLY 10/100ths OF A MINUTE

DROPPING BOBBIN IN CHUTE

TYING KNOT WITH HIGH SPEED INSTRUMENT AND TESTING — ALL WITH LEFT HAND

RESTARTING SPINDLE WITH RIGHT HAND



AUTOMATIC SUPPLY BOBBIN EXCHANGER

A Yarn Winder for Every Purpose

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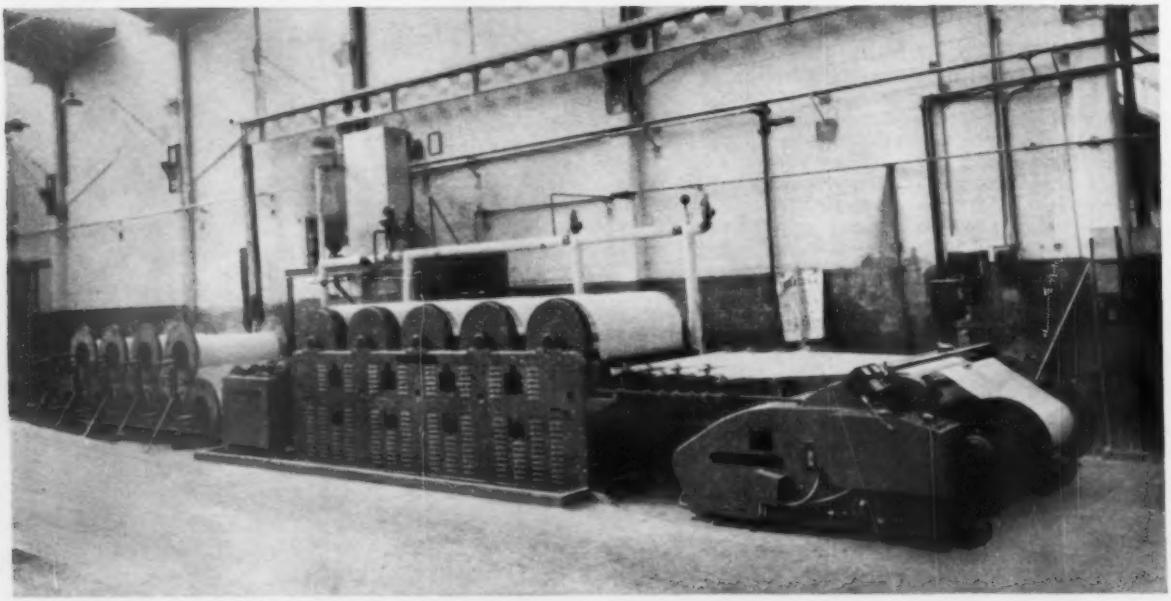
ANOTHER RECENT COCKER GH SLASHER INSTALLATION



At Textiles "Aga. S·A·" Tlalpam, D. F.

A Cocker GH Slasher Installation "SOUTH OF THE BORDER"

Cocker's reputation is world wide, and you will find Cocker Warp Preparatory Equipment in the finest mills everywhere.

The reason is simple. No other company has such an impressive record of firsts, in the warp preparatory field, as Cocker. It is significant that virtually every feature pioneered and made standard by Cocker has been adopted by all other manufacturers.

The Cocker GH Slasher shown here has valuable features which will probably not be offered on other equipment for years to come and gives you "TOMORROW'S SLASHING TODAY". An investigation of Cocker equipment can mean untold savings in the future. Write for our catalog today.

Exclusive GH Slasher Features

- Simple, efficient Torque Tube Drive*
- Individually removable cylinders
- Snap-out ventilating panels
- Light metal sprocket guards
- Air motor loading of size box top rolls
- Vibration-free speeds up to 184 ypm
- Compact, low-silhouette design

*Pat. Pending

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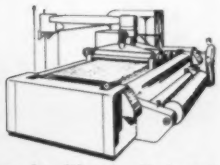
There's Turbo in everything she bought!

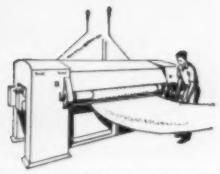
She loves beautiful things . . . sheer, delicate hosiery . . . the delightful warmth of high-bulk sweaters . . . the soft touch of fur-like fabrics . . . richly finished woolens . . . plush, carefree carpeting, draperies, upholstery . . .

Turbo machines bring out the beauty in your fabrics — in fiber production, spinning, knitting, weaving, dyeing, and finishing. Almost all the leaders in the textile industry talk to Turbo first. Shouldn't you?

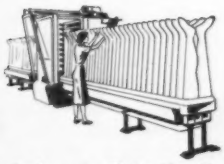
TURBO MACHINE COMPANY, LANSDALE, PA., U.S.A.
Telephone: ULysses 5-5131



Excess handling is eliminated and shearing costs are reduced for carpet manufacturers through the Turbo Cross Shearer.

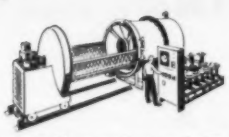


Turbo Electro-Finisher gives woolens, wool-blends, high pile and fur-like fabrics rich vibrant lustre and soft appealing hand.



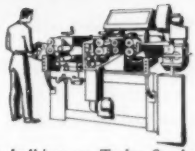
For hosiery, the Turbo Dye Boarder combines preboarding, dyeing, post boarding, and drying in one processing operation.

The Turbo Package Dyeing Machine is one of a complete line of engineered machines for dyeing, drying, extracting, and finishing.



Yarns and fibers are heat set in Turbo machines with capacities from 1000 lbs. (illustrated) to 60 lbs. per cycle.

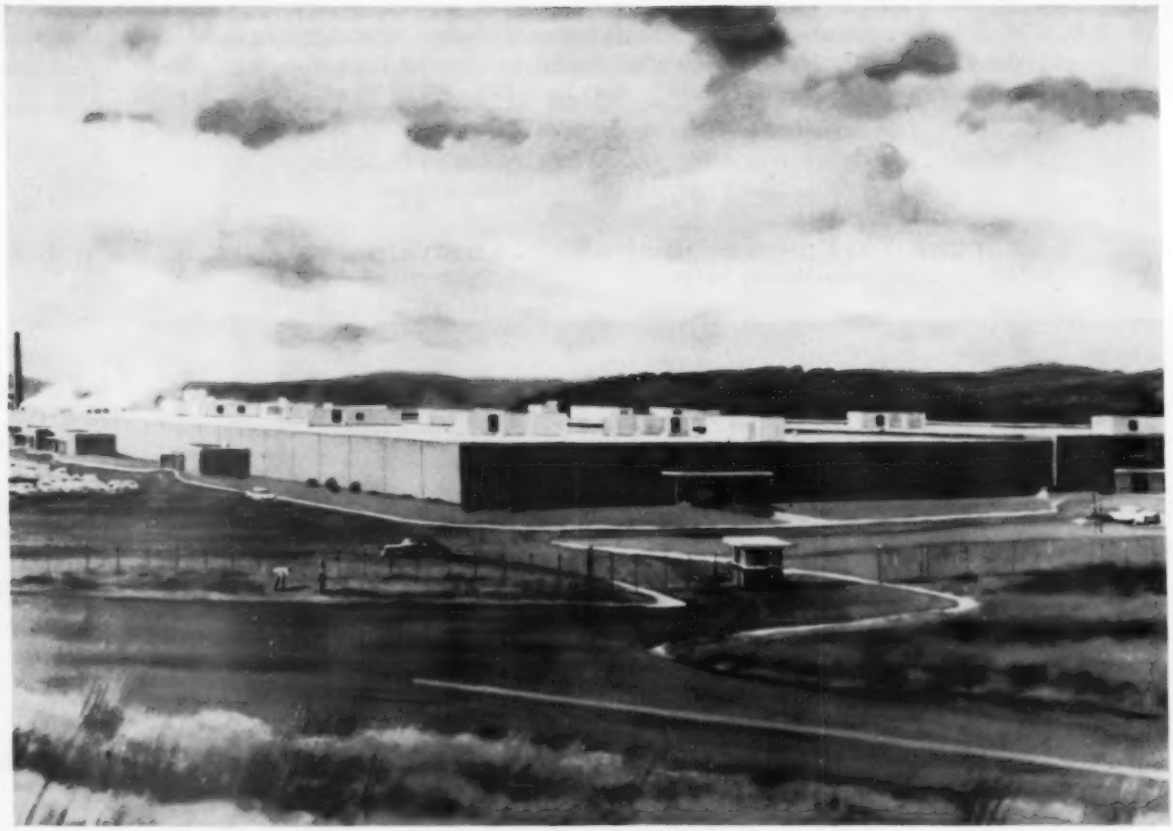
Sweaters are "set for sales" on the tray-type Turbo Fiber Setter.



High bulking on Turbo Staplers, and Turbo Fiber Setters is the shortest route to synthetic fiber spinning.

TURBO

CIRCLE 17 ON READER SERVICE CARD



Award-Winning Plant

Hanes Hosiery Mills Co., Weeks Division
Winston-Salem, North Carolina

The new Hanes plant is one of ten selected by the editors of *Factory* as the year's best. This production center, with 15% more floor space than the main plant, will produce 40% more hosiery "owing to a more efficient plant layout and comprehensive material handling equipment," according to the magazine.

Designed and engineered by Lockwood Greene to be readily expanded, the Weeks Division is one of the largest hosiery mills in this country.

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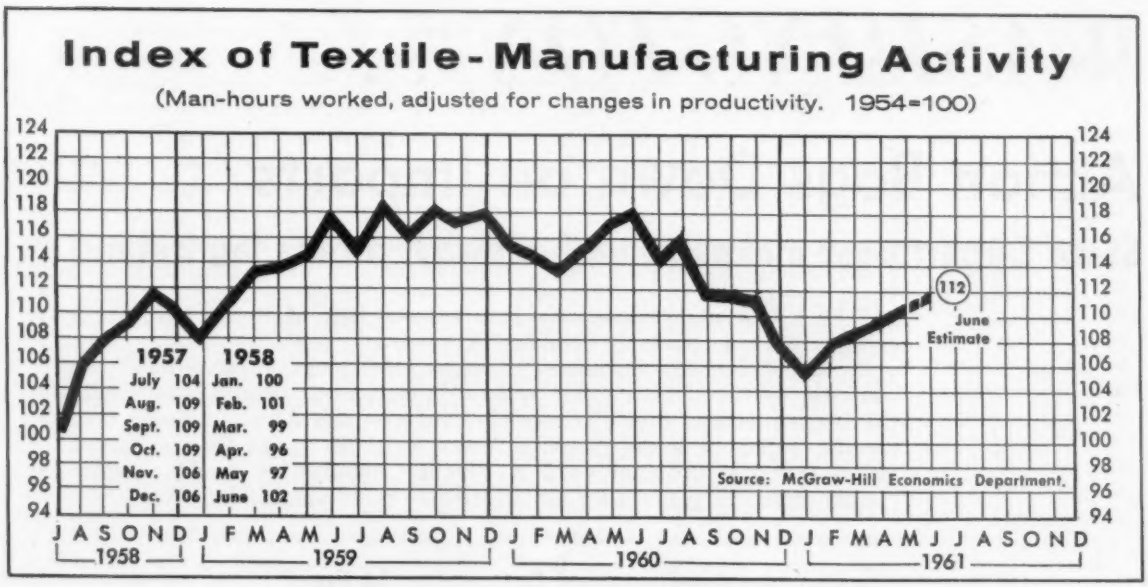

Textiles Snap Back

Textile production has snapped back smartly from its recession low in January. TEXTILE WORLD's index of textile manufacturing activity was 106 that month. Since then, it has steadily climbed, up 5 points to May's 111. It is expected to climb another point to 112 in June (chart). The months ahead will undoubtedly see textile production increase even more for several reasons.

• First, the clothing market could be stimulated by rising consumer take-home pay. Personal disposable income, after dipping slightly during the recession, is again headed upward. As the length of the factory workweek grows and more workers are called back, the stream of consumer income will grow even faster.

• Second, the industrial market should contribute to textile sales in coming months. A vigorous upsurge in industrial output, which has already begun, can only spell good news for textile mills. By the final quarter of this year, total industrial production will be approximately 6% higher than it is now. Taking a longer look: production should continue to rise steadily through all of 1962. Continuing gains in industrial demand coupled with advances in apparel and homefurnishings markets spell higher sales ahead.

•

Just to prove that April's three-point rise wasn't a flash in the pan, industrial production scored another three-point gain in May. At the current index of 108 (1957=100) the nation's factories, mines, and utilities are now operating only 3% below the alltime record of 111 set during the first quarter of 1960.

Figures of the Month

TEXTILE-INDUSTRY INDICATORS

	Latest Month	Previous Month	Year Ago
TEXTILE WORLD'S Exclusive Index (chart above)	111	110	117
Employment (thousands)[1]	916.0	908.4	956.3
Production Workers (thousands)[1]	822.9	814.9	862.9
Weekly Earnings (dollars)[1]	64.78	63.96	65.36
Hourly Earnings (dollars)[1]	1.64	1.64	1.63
Weekly Hours Worked[1]	39.5	39.0	40.1
Production Index (1957=100)[2]	107	106	113
Wholesale Price Index (1947-49=100)[1]	94.4	94.4	96.3
Manufacturers' Sales (billion $)[3]	1.18*	1.16	1.26
Manufacturers' Inventories (billion $)[3]	2.78*	2.76	2.72
Inventories-To-Sales Ratio	2.36*	2.38	2.16
Exports (million $)[3]	140.0*	182.3	155.6
Imports (million $)[3]	85.9*	99.5	101.7
Stock Price Index (1941-43=100)[4]	28.81	29.56	27.34
Failures (number)[5]	10	10	5

NATIONAL ECONOMIC INDICATORS

Industrial Production (1957=100)[2]	108	105	110
Consumer Price Index (1947-49=100)[1]	127.5	127.5	126.2
Wholesale Price Index (1947-49=100)[1]	119.0	119.3	119.7
Civilian Population (millions)[6]	180.7	180.4	177.7
Unemployment (millions)[6]	4.8	5.0	3.5
Employment (millions)[6]	66.8	65.7	67.2
Personal Income (billion $)[3]†	411.3	409.8	401.9

* April; otherwise latest month is May.

1. Bureau of Labor Statistics; 2. Federal Reserve Board; 3. Department of Commerce; 4. Standard & Poors; 5. Dun & Bradstreet; 6. Bureau of the Census; † Annual rate.

WASHINGTON . . .

Action Bogs Down on Imports

State Department makes some headway; others lag behind

Take a look at Washington's progress—or lack of it—on the textile recommendations made by President Kennedy.

On May 2 Kennedy announced his seven-point program for relief of the domestic textile industry. He ordered government agencies—especially the Departments of State, Treasury, Commerce, and Agriculture—to take specific courses of action (TEXTILE WORLD, June '61, p. 42). He also served notice that the Office of Civil & Defense Mobilization would consider "on its merits" a petition for administrative relief against imports.

Coming: An International Cotton Textile Pact?

What has happened in two months? Not much, except in the State Department. State is optimistic that it can negotiate an international cotton textile and apparel marketing agreement. This is designed to head off imposition of unilateral United States textile quotas by sharing the burden with Europe and Canada of growing imports of cotton goods from underdeveloped countries.

The United States is backing a formula of international import quotas based on a ratio of imports to consumption. Tentatively, Washington favors setting the import ratio at about 5% of consumption, roughly the current U. S. rate. That would mean big import increases for France, Germany, and Italy; little change for the U. S.

Agreement in principle on such a system was achieved by Undersecretary of State George W. Ball during his recent European tour. A conference of experts from the U. S., Canada, Britain, France, West Germany, Italy, Belgium, and Holland began work in Washington June 21 to hammer out details.

A conference of exporting countries will be called under the auspices of the General Agreement on Tariffs & Trade (GATT) in Geneva later this summer if the importing countries can reach agreement. The purpose would be to approve the import quota system and to seek agreement on sharing cotton quotas among underdeveloped exporting nations.

The State Department is considering the same approach for other types of textiles—woolens, silks, man-mades—if it is successful on cotton.

Textile Men Not Happy

Textile industry leaders and textile-state congressmen don't like the way the proposed international agreement is shaping up. They say the proposed quota formula would freeze imports at abnormally high 1960 levels, mean built-in increases as consumption increases. The only relief textile men see the State Department offering is its proposal to negotiate with Hong Kong for a 30% cut in its textile exports to the U. S.

Unilateral U. S. import quotas still are likely if the effort to get an international marketing agreement fails. But if it succeeds, it is unlikely that Congress would upset it.

Little Action Elsewhere in Washington

Not much has been happening in the Treasury, Commerce, and Agriculture Departments. They are working on textile questions, but progress is routine and most of these offices have no crash programs.

Treasury officials have been working for a long time on an across-the-board review of depreciation. This started under the Eisenhower Administration. The department sent questionnaires to a wide cross section of U. S. industry, and several went to textile mills. That information now forms the core of the textile depreciation study the President ordered.

Treasury may be ready to make some recommendations on textile depreciation problems by late summer or early fall if work proceeds on schedule.

Assistant Treasury Secretary Stanley Surrey felt that more textile data was needed than was received from the general industry questionnaires. So now new information and views on depreciation are being gathered—some from companies, some from trade associations. Treasury officers have found the textile industry cooperative and helpful.

The textile industry has helped its cause in the Treasury Department by supporting an embattled administration tax plan in Congress.

Kennedy adopted a Treasury plan to give business tax relief through a special tax-credit plan—deducting a percentage of plant and equipment funds from a company's final tax bill. Most of the business community opposed the idea in congressional hearings, asking instead for higher depreciation allowances. Textile spokesmen were among the few who supported the administration.

Surrey earlier promised the industry that textile depreciation would get special attention regardless of the tax-credit plan.

There is apparently less progress in other departments. Secretary of Agriculture Orville Freeman put the problem in the hands of Under Secretary Charles Murphy and Assistant Secretary James Ralph. An interdepartmental committee has been formed to review the adverse differential in cotton costs between domestic and foreign producers. And some meetings have taken place between various Agriculture Department offices. The Cotton Advisory Council is being consulted, too. But there is no indication that Secretary Freeman will be able to make his recommendations to the White House anytime soon.

The Commerce Department is finding it difficult to come up with new uses for textiles on any crash basis.

Commerce's role under the textile program is to expand its program of research, aim at finding new products, processes, and markets. There is no air of excitement, however, and routine studies are being continued under the department's textile division.

Industry Reacts Fast to Kennedy Plan

The domestic textile industry was quickest of all in reacting to President Kennedy's program. The Office of Civil & Defense Mobilization (OCDM) was immediately handed an industry petition asking imports relief on the basis of national security.

A 109-page document asked OCDM for an investigation under Section 8 of the Trade Agreements Extension Act. The section authorizes the agency to determine whether imports of a given commodity endanger the national security of the United States. After the investigation and determination, OCDM makes its report to the President, who, under the statute, has broad powers to restrict imports. OCDM has formally accepted the industry application, but so far has made only procedural moves.

NEWS and COMMENT

Overseas Briefs

Moscow: If Premier Khrushchev acts on his pledge of more consumer goods for Russians, Western textile-equipment makers will get some new business. So say British textile men who attended the 17-day Moscow stand of the British Trade Fair. They signed contracts for delivery to Russia of well over $28-million of textile-mill equipment. They fully expect the fair to generate much more business. . . . *Iraq:* Two large textile mills—one for cotton, the other for worsted and man-made fibers—will be built with Russian aid. . . . *Rhodesia:* Poland has offered to buy more Rhodesian copper, asbestos, tobacco, and wattle if Rhodesia will buy more Polish textiles, electrical equipment, and machinery. . . . *Iran:* Egypt is expected to sign a $10-million contract for purchase of Japanese spinning equipment. . . . *Hong Kong:* Three major textile groups that had turned down a government invitation to talks on exports to the United States reversed their position at mid-June and agreed to attend.

Economic Straws in the Wind

Federal Reserve Board reports industrial output rose in May to 108% of 1957 average—up from April's 105% and first quarter's average of 102%. . . . *Automakers* scheduled 129,025 assemblies for the week ending June 16—nearly 2,000 above the preceding week and barely a shade under a year ago. . . . *U. S. Steel's Gary (Ind.) Works* on June 16 had 44 or more of its 53 furnaces going—highest level since the big push after the 1959 steel strike. . . . *Labor Department* reports the factory work week rose 0.2 hour to 39.8 hours in May, the fourth consecutive monthly increase, and that the durable-goods labor force increased 150,000 from mid-April to mid-May.

Briefs at Home

Washington: The President's Committee on Equal Employment Opportunity held public hearings June 15 to consider proposed rules and regulations for government contracts. . . . *Philadelphia:* Philadelphia College of Textiles and Science graduated 71 students on June 3. . . . *Clemson, S. C.:* New emphasis on management skills shows up in renamed courses and changed curricula at Clemson College's Textile School. . . . *San Francisco:* U. S. Trade Mission to Australia reports Australia offers American manufacturers a promising market for lightweight cotton fabrics and man-made fibers and yarns, plus opportunity for licensing fiber-blending and other processes. . . . *Boston:* W. F. Sullivan, Northern Textile Association president, warns that Red China's textile export prices are an economic weapon of growing strength . . . *Washington:* Agriculture Department predicts a substantial pickup in cotton consumption after Aug. 1, the start of the new marketing season, and a 5% increase in the world cotton crop to 49.2- million bales.

Company Earnings

Company	Period	Sales ($1000's)	Change From Year Ago	Earnings ($1000's)	Change From Year Ago
Beaunit Mills	Yr. to 3–31	$109,672	−11.6%	$3,245	−48.4%
Dominion Textile	Yr. to 3–31	103,185	+ 5.8%	3,609	+ 3.3%
Collins & Aikman	Qu. to 5–26	17,000	+23.2%	n.a.	n.a.
J. P. Stevens	Hlf. to 4–29	217,435	−11.1%	3,703	−58.2%
J. P. Stevens	Qu. to 4–29	119,187	− 7.9%	1,964	n.a.
Courtalds Ltd	Yr. to 3–31	n.a.	n.a.	29,292	−11.8%
West Point Mfg.	9 mo. to 5–27	104,943	−11.9%	3,298	−47.2%
West Point Mfg.	Qu. to 5–27	34,960	−10.9%	514	−76.1%

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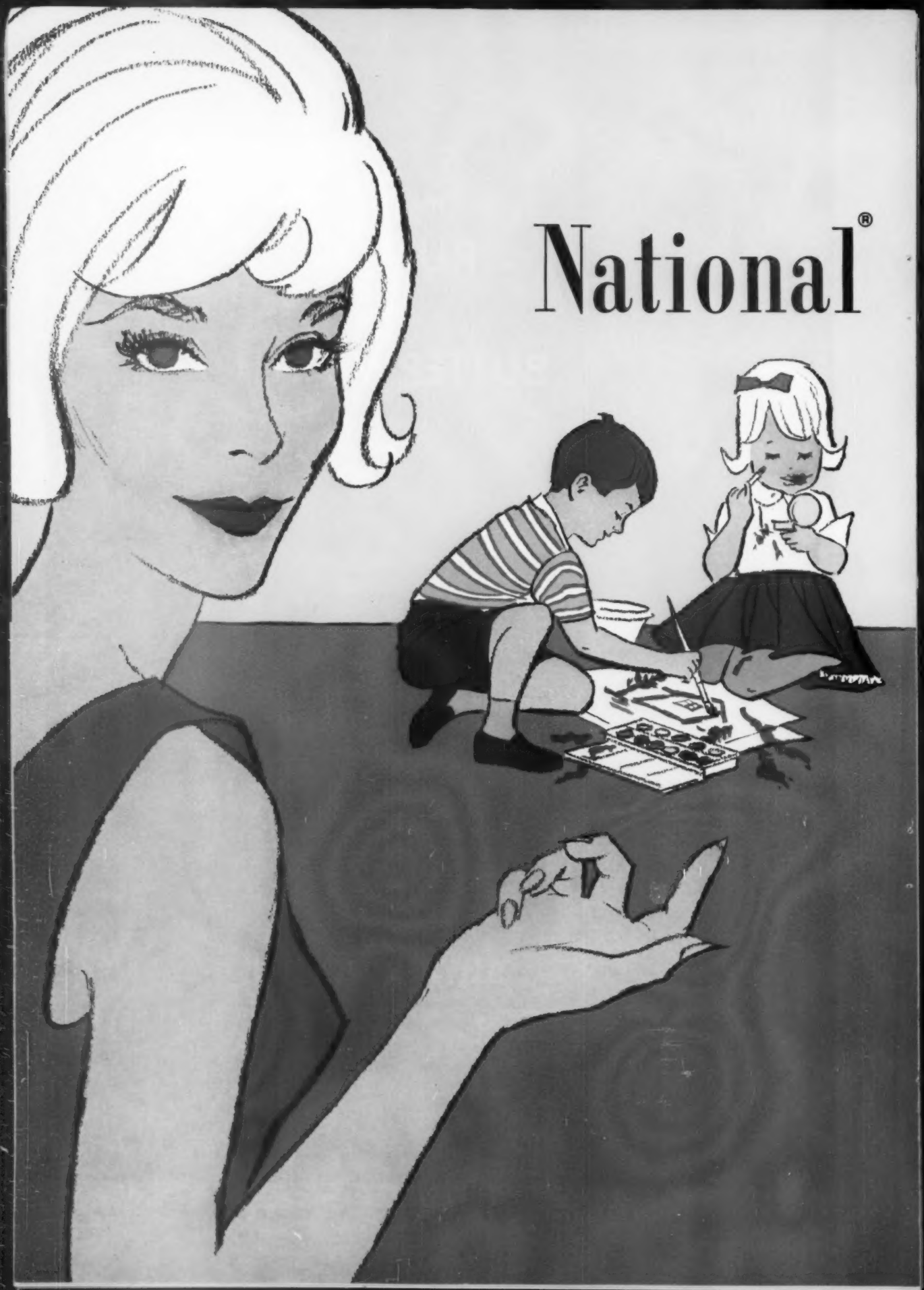
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Colors in the illustration, left, are self-shades and combinations of the dyes shown below. They were chosen from the complete range of National Sulfur Dye Solutions because of current interest in these shades.

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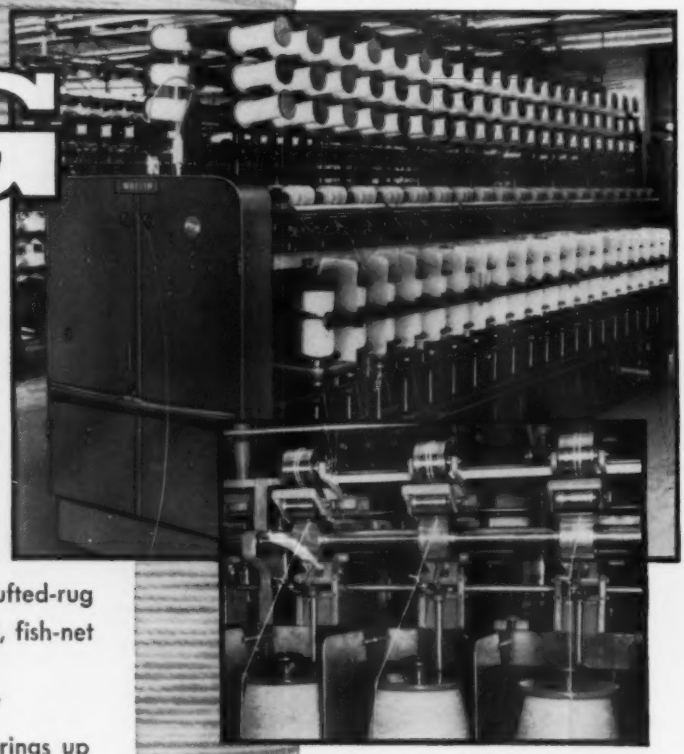
With a 12" traverse and giant rings up to 8½" in diameter set in heavy steel ring rails, it is capable of processing yarns as coarse as 45,000 denier on packages holding as much as 11.0 lbs. of yarn. The COMMODORE has a rugged, solidly-built frame — a frame that can carry its tremendous loads without flinching. It is liberally equipped with anti-friction bearings, has precision-cut gearing and a sturdy pulley-type tape drive. Extra heavy ball bearing spindles mounted in cast iron spindle rails easily rotate these heavy packages at speeds reaching 4000 R.P.M.

A Big Twister to do a Big job — with all the advantages of **big, Big, BIG** packages.



Of particular interest to woolen yarn and carpet mills is the famous Whitin selective-type trap motion. It is available as optional equipment and can accommodate up to 6 ends. Proven on scores of installations, it has established an industry-wide reputation for efficient, positive and trouble-free operation.

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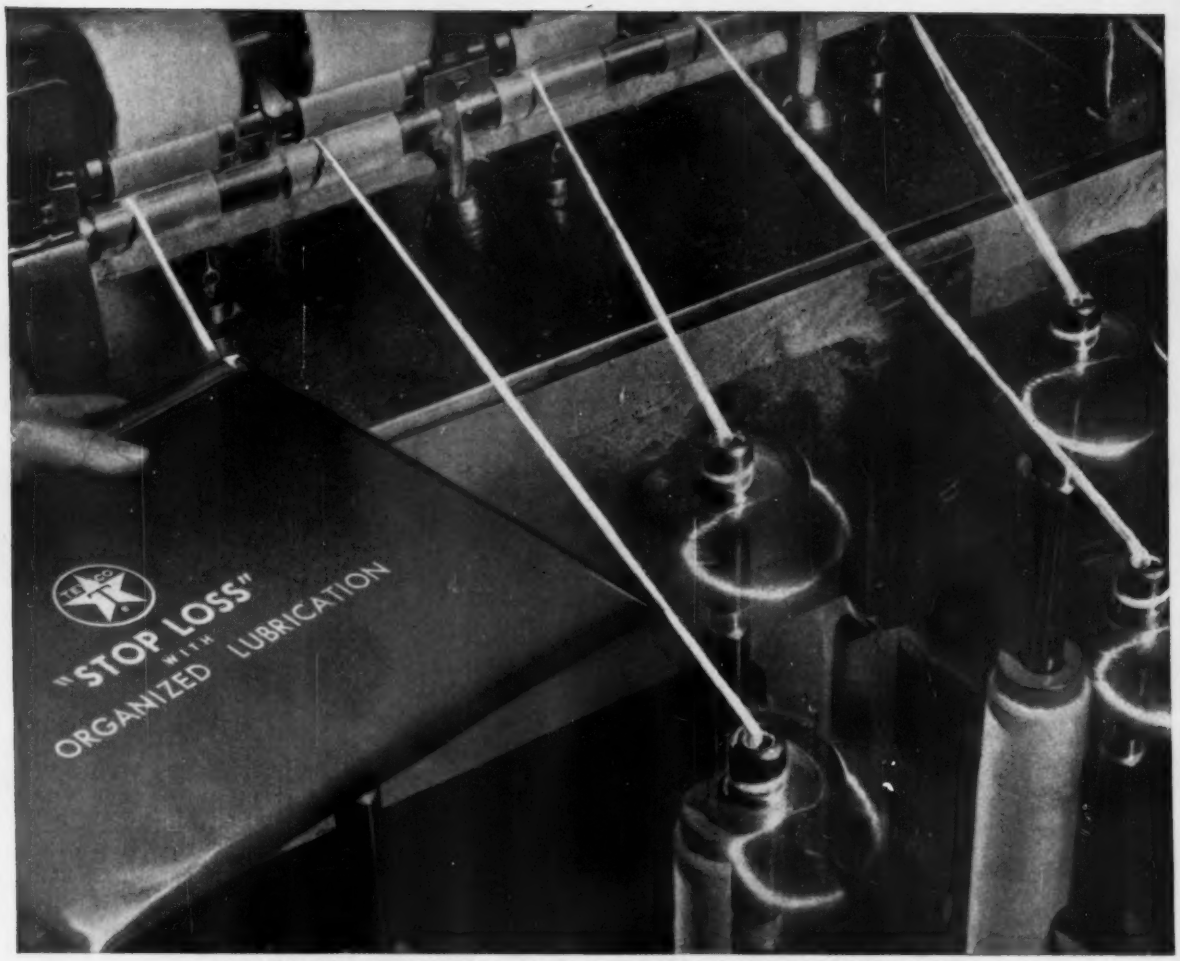

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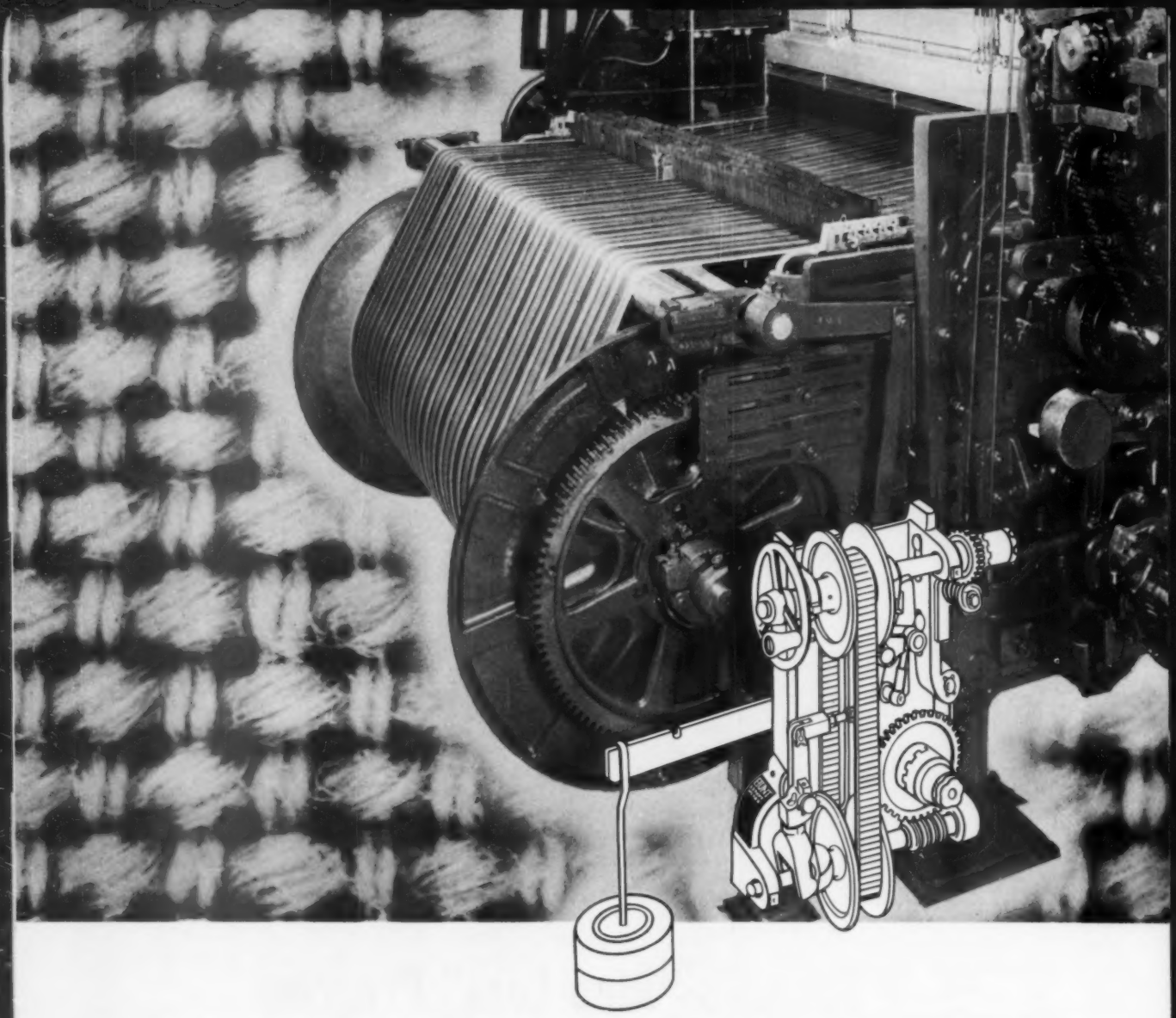

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CIRCLE 28 ON READER SERVICE CARD

TEXTILE WORLD . . . Editorial Vol. 111, No. 7, July 1961

Mopstick, Rag, and Plank

NOT LONG AGO we strayed off the textile circuit and took a tour through the brand-new plant of a bearings manufacturer. Everything spick and span. Air conditioning all over. No-hands material handling. Good lighting. Instruments, controls, and panel boards in great numbers. Shiny, high-speed machines—some costing a small fortune, others costing substantially more. Automation everywhere.

Almost everywhere, that is. Here's what we saw:

• **A mopstick.** A bright new lathe was taking a heavy cut off a piece of steel-bar stock. The chip came off in a long, continuous spiral, like a wood shaving from a carpenter's plane. It was thick, unyielding, and sharp-edged—too stiff and dangerous for bare hands to handle. Yet it had to be thrust out of the way as it spiraled off, lest it curl into an unmanageable mass, foul the machine and the workpiece, and jeopardize the machine operator.

What to do? Give the operator a plain mop handle, let him poke the chip aside and thus keep it moving away from the cutting tool and from the operator himself.

• **A rag.** A costly, high-speed, automatic-feed boring machine was going about its work deftly, silently, efficiently. A stream of cutting oil played over the workpiece. The operator had hung a plain cotton-cloth rag just over the cutting edge. This way, he kept the cutting oil from splashing all over himself and the nearby floor.

• **A pine plank.** There stood one of the fanciest, costliest machines in the whole plant—a centerless grinder with automatic feed, automatic indexing, automatic ejection. It was spewing out highly polished bearing races at high speed. The races rolled on edge down a gravity chute and tumbled into a totebox. What kept the races from getting dented and scarred as they fell from chute to totebox? A soft pine plank, laid across the top of the totebox. It broke the fall of the tumbling races, softened the blow when they fell into the totebox.

Of course, we've seen the same kind of ingenuity in textile mills and finishing plants. Then why tell this story? We're telling it because lessons well known in the textile industry take on new impact when drawn from another industry.

What lessons? At least three. We believe textile men again and again should recall these lessons to the level of consciousness, especially in these times of burgeoning mechanization. Here they are:

1. Few jobs are ever really complete. Doesn't matter whether it's lathe or loom, grinder or winder—you're dead if you sit back and give absolutely no thought to the next step in improvement.

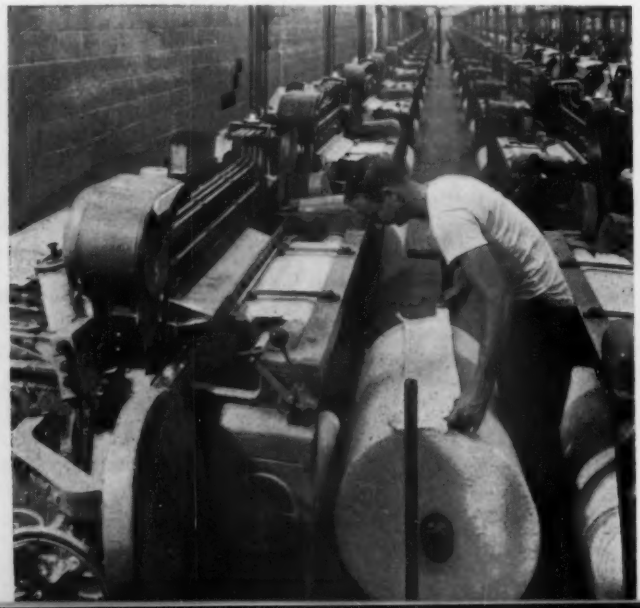
2. For many a complex problem there's an uncomplicated answer that will cost less than a complex answer—and may do just as well or even better. You can waste a lot of time and money in a quest for answers that lie right at your feet.

3. However smart a machine may be, a human being is smarter—lots smarter. We hold no brief for mopsticks, rags, or pine planks as sophisticated problem solvers. But we do hold a brief for man's creative ingenuity. Give a man a problem, give him freedom to work—and watch the answers come.

LONG LINES of shuttleless looms (200 of them) make up the biggest shuttleless-loom installation in a single weaveroom.

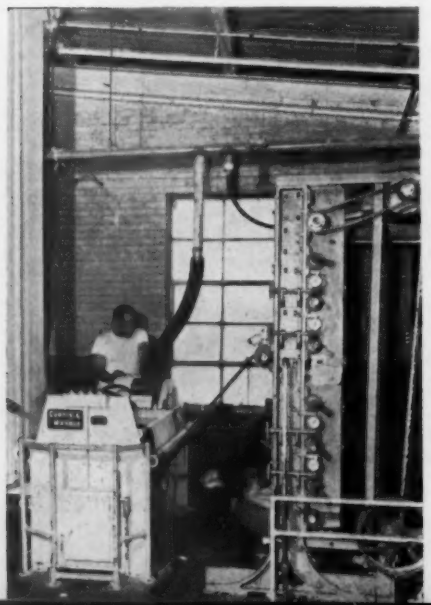
INSTALLING THE WARP requires a special truck to handle 32-in.-dia. beams at looms, where warps are retied with portable machines. Truck straddles beam for lifting.

DOFFING THE CLOTH on giant rolls also requires a special truck. Cloth revolves on two rolls at base of truck so the doffer can pull the cloth back for doffing.



Weaving photos by Coxe Studio, Greenville, S. C.

TRIMMING THE SELVAGE on the left-hand side (necessary with shuttleless looms) is done on this machine.



Here, for the first time, and straight from the mill, are . . .

The Facts About Shuttleless Looms

This is the first inside look at shuttleless looms and how they work from a mill that used 200 of them to replace 240 old looms. Result: A sharp 16.5% jump in output.

AT LAST, out of the secrecy of five years of testing shuttleless looms in mills, here's the first complete report on them. It comes from a mill that's now operating 200 of these looms. The following answers to TEXTILE WORLD questions will point out how and where shuttleless looms fit into the production scheme of a textile mill.

• **Why were shuttleless looms chosen?**—For pure economics, Carolina Mills, Newton, N. C., says. The company wanted higher output at lower labor costs.

• **What's the payoff?**—Today 200 shuttleless looms are producing 16½% more fabrics than 240 conventional looms formerly produced. At 240 ppm. the company now runs 317,952,000 picks per week (210,285 yards at 42 ppm.), compared to 273,196,800 picks per week (180,685 yards at 42 ppm.) with the old looms. In addition, the over-all number of employees on the looms was cut from 85 to 37.

• **How are the looms performing?**—Loom efficiency is now 92% (old looms, 93%), but Carolina Mills expects it to reach 95% in the near future.

By RICHARD B. PRESSLEY
Senior Associate Editor
TEXTILE WORLD

That capsule summary points up the reasons why Carolina Mills decided to put in a second set of 100 shuttleless looms last February 1—nine months after the first 100 were installed. That nine-month period was long enough for Carolina to evaluate the shuttleless loom: It liked what it saw.

WHAT'S BACK OF IT?

Carolina selected Draper shuttleless looms (DSL) for pure economics. (For mechanical report on Draper Shuttleless Looms, see TEXTILE WORLD, Feb. '59, p. 97.) Leonard Moretz, its youthful, busy, and optimistic president, says: "With labor costs constantly increasing, building this new weaveroom is only one step we're taking in modernizing all of our mills. We're trying to set up to compete with the best mills in the textile industry today.

"By installing high-speed automatic machines, we expect to reduce manufacturing costs. And invariably as we install this equipment, we're ending with a higher-quality product. If you don't have machine stoppage, you're naturally making a better product.

"The new shuttleless looms are weaving cleaner, more uniform cloth than the old looms. We see a great

potential for lower-cost production with our new shuttleless looms. Lower maintenance costs—including supply parts—also look promising."

WHAT IT COST

Carolina Mill's over-all building and other equipment costs—minus the price of the looms—were $323,900. If bought, the looms would cost $560,000—in 5 years. Carolina, however, has leased the looms for seven years. Contract includes option to extend the lease with no option to buy.

Decision to lease rather than to buy outright was based on the company's desire to show a profit on this installation every year. Leasing the looms Carolina can "expense" the rental costs rather than capitalize (and depreciate) a big investment. Although the lease runs seven years, Carolina figures loom payoff to be five years. And of course, Carolina expects greater savings each year after meeting initial lease payments.

A SHOW PLACE

Carolina's looms—stretching out in a brand-new building—make a show place of modern textiles—glossy new looms, sparkling tile walls, bright fluorescent lamps, and shiny air-conditioning ducts.

The new building adjoins Carolina's old No. 3 mill. Carolina's own construction crew built the weaveroom except for masonry work.

The floor is concrete. The roof is built-up tar and gravel over a precast-concrete deck laid on steel I-beams. The building cost $190,000. Construction costs were increased materially because of location: The building has a good-sized stream running under it, and a lot of money was spent to drive piles and lay proper foundations.

The building's interior is 280 feet long and 75 feet wide (21,000 square feet). Three bays run the length of the building and each is 25 feet wide. Twelve I-beams running the length of the building form the bays.

The mill's air conditioning is an air-washing system (Bahnson). Two penthouses hold the equipment and each serves ducts in one-half the weaveroom. Capacity is 600 cfm.

SUPERVISION IS CLOSE

. . . right down the line, particularly during first months of operation. Top man, President Leonard Moretz (right) passes along orders to Superintendent C. A. Irby on the mill floor.

. . . Irby, in turn, helps Weaveroom Overseer J. E. Cope make decisions right at the looms.

Here Are Facts About Carolina's Shuttleless Looms

Manufacturing

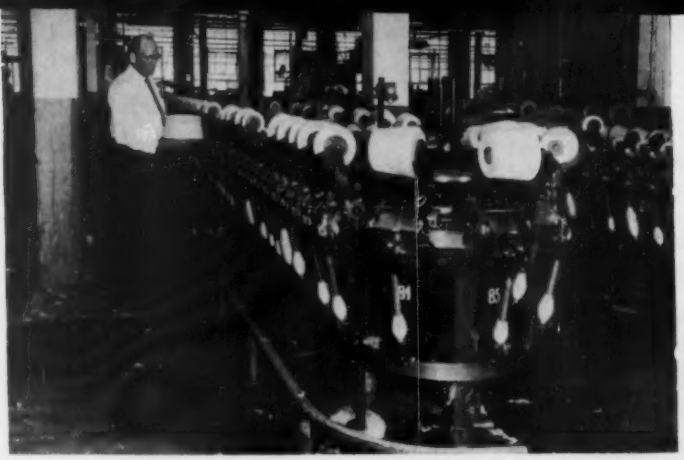
	Draper Shuttleless Looms	Updated E-Model Looms
Total looms	200	240
Picks per minute	240	170
Efficiency %	92	93
Picks per week	317,952,000	273,196,800

Employee Jobloads

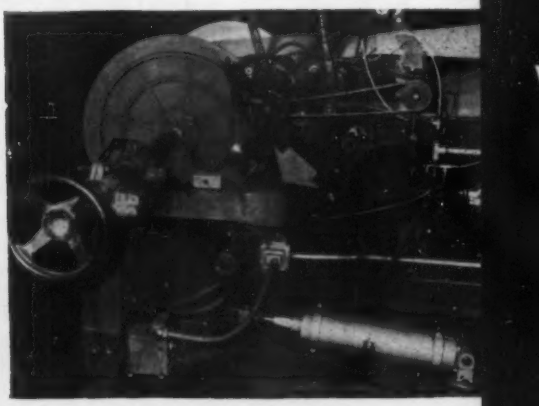
	Draper Shuttleless Looms	Updated E-Model Looms
Looms per loom-fixer	100	80
Looms per weaver	50	48
Looms per battery-hand	0	22 to 37
Looms per filling-yarn creeler	200	0

Facts on Manpower

	Draper Shuttleless Looms		Updated E-Models	
	Per shift	Total (3 shifts)	Per shift	Total (3 shifts)
General overseer	0	1	0	1
Shift overseer	1	3	1	3
Loomfixers	2	6	3	9
Weavers	4	12	5	15
Batteryhands	0	0	8	24
Filling-yarn creelers	1	3	0	0
Lubrication employee	½	1½	1	3
Filling haulers	0	0	1	3
Warp-tying operators	1	3	1	3
Cleaning employees	½	1½	2½	7½
Cloth doffers	1	3	1½	4½
Bobbin-stripper operators	0	0	2	6
Filling-winding operators	0	0	2	6
Selvage-dipper operator	1	3	0	0
TOTAL EMPLOYEES		37		85



WINDING THE FILLING requires cone winders to handle 6-lb. packages. One new unit was installed in the yarn-preparation department. Two old units were modified.



SLASHING THE WARP is handled by a unit modified with a beam-holder extension (arrow). Unit now takes 32-in.-dia. beams. Formerly it handled beams up to 24 inches.

PREPARING THE SELVAGE is quick with these spool winders designed by Carolina's Superintendent C. A. Irby. Machines have automatic cutoff when spool is filled.

The compressor is Ingersoll-Rand, 5½ x 4. Eighty-four atomizers add to weaveroom moisture.

The electrical system had to be revamped for the new weaveroom. Voltage at substation is 40,000. Looms are driven by 550 v. Initial cost is cut by use of individual circuit controls with regular disconnect switches. Continuous-row fluorescent lamps had an initial output of 65 footcandles.

WHAT CAROLINA MAKES

All fabric woven at Carolina is Canton flannel, 35 and 37 inches wide. Fabric 35 inches wide has 2,124 or 2,288 warp-yarn ends. The 37-in. fabric has 2,440 yarn ends.

One fabric is made from 18½s warp yarn and 5.50s to 9s filling yarn. Construction is 66x42 and weight is 6 to 8 ounces.

The second fabric is made from 12½s warp yarn and 2.50s to 4.75s filling yarn. Construction is 61x38 and weight is 9 to 14 ounces.

Twist multiplier for all filling yarn numbers is 3.30.

A cone of filling for shuttleless looms of 5.50s yarn weighs 6 pounds. An average loom warp yarn beam weighs 900 pounds. A beam with 18½s yarn contains 4,000 yards; 12½s, 3,000 yards.

WHAT WAS REPLACED

The 200 new shuttleless looms replaced 240 modernized E-model looms in an adjoining older mill. Fabrics woven are the same.

Old looms ran at 170 ppm. and weaveroom efficiency was 93%. Second-quality cloth was 3 to 4%. Loom-yarn beams had a 24-in. diameter and held 1,650 to 2,000 yards of yarn. Filling bobbins were 8¾ inches long (longest bobbins possible with automatic changing), and averaged 2.3 ounces of yarn. On 2.50s filling yarn, bobbins were transferred every 30 seconds.

There was a shift foreman on each of the three shifts. Loomfixers had 80 looms, weavers 48 looms, batteryhands 22 looms on 3s filling and 37 looms on 5.40s filling. There were eight battery-hands a shift. Weaveroom humidity was 84% and temperature was 85 F.

WHAT WAS ADDED

Installing DSL's at Carolina brought changes extending to cone winders. Two old-model Abbott cone winders that wound 4-lb. packages were modified to Model 67, at a cost of $4,700 and $4,400 each. A completely new Model-67 winder with 100 spindles was installed for $11,400. Winders run at 600 ypm. and put in 22 bobbins per minute. Even though all yarn has very low twist, Carolina packs 6 pounds of yarn on the cones.

Carolina improved loom efficiency by adding a selvage spool with six warp ends to the left-hand selvage. This yarn weaves next to the selvage leno binder. Right-hand selvage is still woven from the main warp.

Carolina's Superintendent C. A. Irby designed, and had built in the machine shop, two machines to wind these spools (photo above).

First machine builds the selvage spool with six ends of 30/2 yarn, which is taken from 3-lb. cones. Two spools are wound at once. Each spool holds 2,000 yards of

yarn. And since regular loom-yarn beams hold 3,000 to 4,000 yards of yarn, two or less selvage spools run out a regular warp beam.

Second machine is used to wind spools for the selvage leno binder. It's similar to the first machine except that it winds four of the smaller spools at once. Spool holds 4,000 yards of 70/3 yarn. Cone contains 7,200 yards.

Both machines have limit switches that stop individual heads when a spool is filled. Mill watchmen operate the machines along with their regular work on the week end. Running time for the spools is 10 to 12 minutes. So the watchman doffs the spools, restarts the machines, and makes his regular round. When he returns, machines are ready to be doffed and restarted. Machines don't have to be operated at all during the regular work week.

Only other modification to existing machinery was an extension arm added to the slasher head so that 32-in.-dia. loom-yarn beams could be used. A seven-cylinder slasher formerly took 24-in. beams.

Two problems that came with DSL's: yarn and cloth handling. Carolina made trucks to handle cones of yarn. The cones are doffed into trucks at winders, and then rolled right down loom-warp alleys.

Other trucks were made at the mill to transport 900-lb. loom-yarn beams from slashing to weaving. These trucks tie in well with a hydraulic truck used at the looms.

Since rolls of cloth are 24 inches in diameter and weigh 250 to 400 pounds, a special truck had to be built to doff cloth. On this truck, cloth is rolled manually to a fixed position in the weaveroom where it's removed with an electric hoist.

A new selvage trimmer (Curtis & Marble) was added in the cloth room to clip the ¼ inch of protruding yarn at the left-hand selvage. Machine speed is 100 ypm.

RESULTS

After a hard pull in training or retraining every employee in weaving, Carolina is now getting these results: 92% efficiency and 6 to 8% seconds. The company expects a 95% efficiency in the future. Looms (44 inches wide) run 238 to 240 ppm.

Training employees for shuttleless looms presented no unusual problems. Loomfixers and supervisors each spent four weeks at Draper's Spartanburg, S. C., training center. These same men ran the old E-model looms. Weavers, too, came from the old mill. Loomfixers trained at Spartanburg taught the first weavers. And as looms were erected, trained men taught others.

Brand-new employees learned to fix looms and weave more easily than they had on other looms.

What Carolina Mills Paid For Its Change to Shuttleless Looms

200 Looms (cost if Carolina Mills had bought rather than leased)	$560,000
Building	190,000
Air conditioning	33,000
Electrical work	7,500
Selvage trimmer	5,000
First winder changeover	4,700
Second winder changeover	4,400
New winder	11,400
Lubrication system for looms	6,900
Mechanical loom-cleaner equipment	24,000
Harnesses, loom beams, and other equipment	37,000
TOTAL COST	$883,900

But not everything is perfect. Leonard Moretz sums up one weaving problem this way: "When the filling yarn is cut and inserted through the warp, twist is removed from the yarn irregularly. As a result, Carolina had difficulty in getting a uniform nap on the finished fabric. Remedy at Carolina was to make adjustments to napping machines to compensate for variation in filling twist."

WHAT WORKERS DO

After several months of study and continuous job sampling, Carolina established its work assignments this month. There's a general overseer of weaving and one shift foreman per shift. Loomfixers have 100 looms, weavers 50 looms. One man creels filling, one man ties wraps, and one man sweeps, doffs cloth, and lubricates looms (where automatic lubrication doesn't cover).

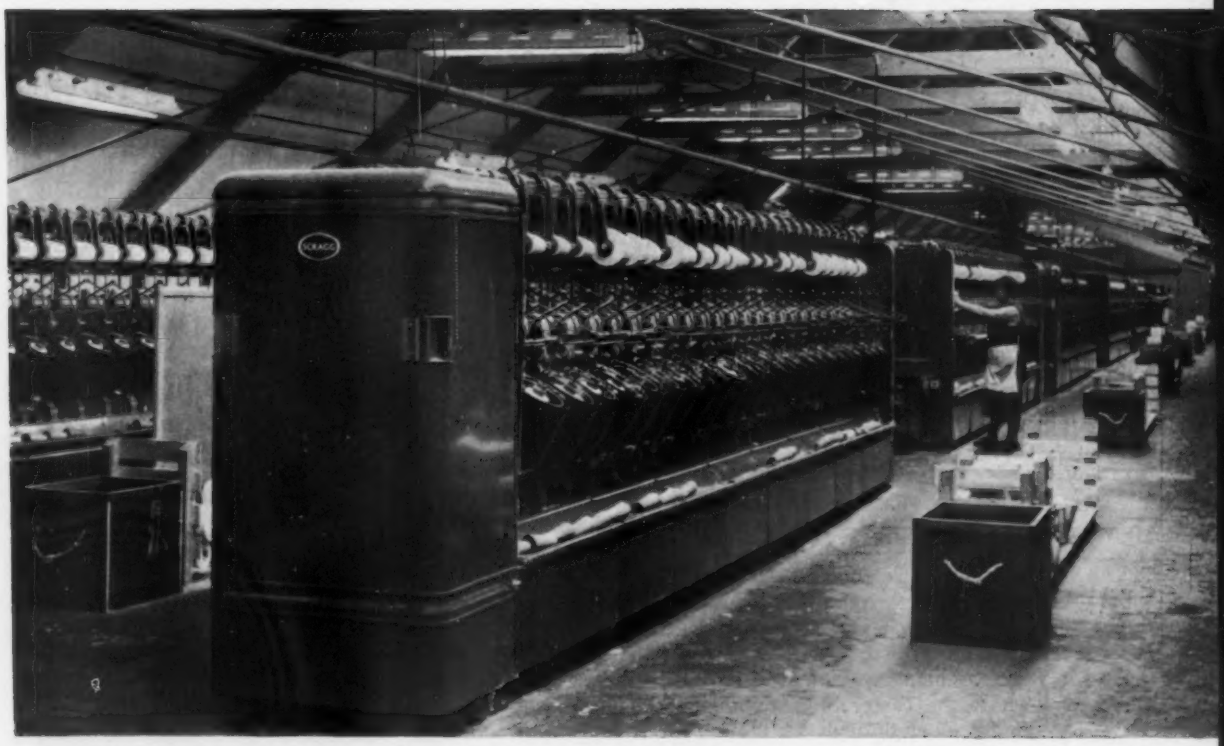
Cloth is doffed by size: rolls 24 inches in diameter. Yardage varies between 250 and 400 and averages 300. A roll is doffed from a loom about every fourth shift.

Loom lubrication is virtually automatic with a Lincoln system. But several points have to be lubricated manually with a portable grease gun. Manual lubrication requires 24 man-hours per week.

Looms are cleaned mechanically with a Parks-Cramer loom cleaner with TravelVac floor vacuum cleaner. There are four alleys of looms in the weaveroom (two looms per alley facing each other), and there's a mechanical cleaner for each loom alley. Cleaner makes a cycle every 8 minutes. Then it reverses itself with a limit switch.

All sweeping from the TravelVac is collected each time the cleaner stops. Vacuum system takes lint to a bin in an adjoining room in the older mill. An average of 300 pounds is collected each week.

In addition, all looms are blown off with an air hose every second day. And every week end—walls, ceilings, floors, and looms are blown off. Carolina's cleaning problem is unusually severe because of the low-twist yarn. Relative humidity is maintained at 85%.



TWISTERS are lined up in parallel rows. Four operators now handle 480 spindles, producing 15,000 pounds per 45-hr. week.

Now—Cost Down, Quality Up

Here's the story of a mill that modernized its twisting and winding from start to finish. Payoff: less labor, less yarn waste, lower bobbin cost, and higher efficiencies.

TODAY 480 double-twist spindles are turning out as much yarn as the 1,690 ring- and fly-doubling spindles they replaced. Result—a rich payoff for the Stanley Cotton Mills, Stanley, Pertshire, Scotland (as told by veteran business reporter John Duffy to TEXTILE WORLD's News Bureau in London). Look at the gains reported at Stanley Mills:

- Reduction of 40% in direct labor.
- Eight-fold increase in package size from the previous maximum 12-oz. twisted cone or tube to today's larger package.
- Knotless yarn on 6-lb. packages.
- Working efficiencies of 93%.
- Waste reduction of 5%.

Stanley's installation of 12 SDT machines (Ernest Scragg & Sons Ltd.) turns out 15,000 pounds of yarn per 45-hr. week—as much as the old 1,690 spindles. This system has been operating continuously for over a year—long enough for the

How Modern Twisting and Winding Cut Labor Costs for Stanley Cotton Mills

. . Begins on page 35

company to evaluate the SDT machines thoroughly.

Stanley makes knotless 3- or 6-lb. packages on conical or parallel tubes at up to 15,500 turns per inch. The mill maintains a consistent 93% efficiency, too. The yarn goes into industrial fabrics, heavy sewing thread, tufted carpet and candlewicks, and yarns to meet government fabric specifications. The companies using these yarns demand large knotless packages. Stanley has met these requirements with the SDT system. It not only makes long lengths of knotless yarn but it also ties all knots in the single end, which helps in later operations.

HOW TWISTERS OPERATE

The SDT system uses a stationary supply package (in the photo illustrating Step 2 on the facing page). Yarn is drawn off over-end, taken through a flyer mounted above the package, down to the center of a stationary spindle tube, through a slot in the spindle base, and then upwards through a control eye above the flyer. From the flyer the yarn passes around a gear-driven delivery roller. Finally it's taken up at the top of the machine onto a cheese or cone, as required. In this way every revolution of the spindle rotor puts two turns of twist in the yarn.

The package weight will depend on the type and count of yarn twisted. Four units (Model 4) have 48 spindles that can produce up to 4-lb. packages. On the remaining eight machines (Model 8) 36 spindles turn out packages that weigh up to 8 pounds.

Stanley makes cones of 3-deg., 30-ft. taper or parallel cheeses of 12/2, 14/2, 12/3 and 14/3 cotton count. The mill makes a parallel cheese or large cone at 10,400 turns per minute (on the SDT Model 8) for yarns up to a single equivalent count of 3s. When the yarn is finer than 3 single equivalent, these units run at 12,600 turns per minute.

ASSIGNING WORK

Four female operators run the 480 spindles. One man handles all yarn transportation for the entire installation.

The SDT twisters with their associated winders replace a former installation of 1,200 ring-doubling spindles and 490 flyer spindles, plus a 260-spindle winding frame and a 40-drum machine for finisher-winding. The largest twisted package produced on the old system was 12 ounces, with numerous knots included in the finished doubled or folded assembly package. This required 35 operators.

With the new system 16 operators run the cone and assembly winding. This compares to the 13 needed for make-up winding with the old method. But here's the big saving with the SDT system: Four operators work the double twister that makes the finished yarn package. With the old system it took 14 operators for twisting, and another 8 for final winding. The SDT units have eliminated the final winding. Over-all results: 20 operators now do the work of 35 operators on the old system (see table of comparison on the facing page).

THREE-STEP PLYING

Yarn is made in three distinct operations (photos) after the spinning package is produced:

Step 1. The cotton yarn is first cleared and wound onto single-end 3-deg., 30-ft. cones from spinning packages that contain 2.8 ounces of yarn of 12s count or above, or 3.1 ounces of yarn up to 12s count. In both cases a 2-lb. package is made at a winding speed of 500 ypm.

Step 2. In assembly winding, Stanley makes parallel cheeses containing 6 pounds of yarn for the SDT 8 machine and 3 pounds for the SDT 4. The winder runs at 380 ypm.

Step 3. Twisting and doubling, the final operation, is thus done from perfectly wound parallel cheeses. All knots were inserted at the single-end stage only.

Of the total yarn spun, about 75% is produced on the SDT units. These yarns are used in the mill's own weaving room in making duck, webbing, belting, and sales yarn. Stanley is a vertical mill, with spinning and weaving carried out on the premises. For direct sales, 8/3, 8/4, 8/5 and 10/3 yarns are made for industrial sewing threads; 16/3 to 9/3 for duck fabrics; 8/6, 12/4 and 16/7 for beltings; and 8/3 and 8/5 yarn for webbings.

PLUS FACTORS

Warp and filling preparation have improved with the new system. And there has been a distinct improvement in cloth quality and weaving efficiency. Main reason: longer lengths of knotless yarn.

Warping takes less floor space for the creels—the packages are larger. And warping efficiency has increased because runs are longer between creel changes.

Elimination of supply bobbins means a 45% saving. Previously 19,000 double-flanged bobbins were required to service the twisting department—a substantial cost in the mill's inventory. Now paper tubes, representing only a fraction of former bobbin costs, are used throughout the operation. They are nonreturnable for SDT machines.

Stanley cut costs in other directions, too: elimination of ring travelers, rings, tapes, ropes and belts; reduction in maintenance and lubrication needs; time saved when changing counts on ring doubling machines—there are no changes now for ring diameters or travelers; no more adjustments needed to vary balloon and package shapes.

Stanley now uses preventive maintenance to reduce mechanical failures. Also weight, twist, strength, and over-all quality checks are made once a day on each machine.

New Method
Operators Required—20

Old Method
Operators Required—35

Winding and doubling 15,000 pounds per 45-hr. week of 3.63s average count yarn

Modern Double-Twist Spindles

Step 1
Single-end cone winding:

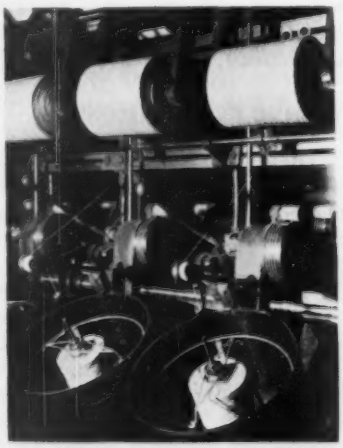
One winding frame	120 spindles
One winding frame	100 spindles
Package weight	2 lbs.
Operators required	**12**

STEP 1: Cone winding—Yarn from spinning bobbins is cleared and wound onto 2-lb. cones. Knots are in the single end only.

Step 2
Assembly winding:

One winding frame	84 spindles
Package weight	6 lbs. (for SDT-8) 3 lbs. (for SDT-4)
Operators required	**4**

STEP 2: Assembly winding—Parallel supply cones with up to six ends are made in 3- or 6-lb. cones. Measured yarn length can be made.



Step 3
Double twisting:

Eight 36-spindle (SDT-8) frames	288 spindles
Four 48-spindle (SDT-4) frames	192 spindles
Package weight	6 lbs. (parallel) 3 lbs. (cone)
Operators required	**4**

STEP 3: Twisting and doubling—Supply package is stationary. Yarn threading and machine design permit two turns of twist per revolution of the flyer spindle.

Old-Fashioned Ring and Flyer

Make-up winding:

One split-drum winding frame	260 spindles
Package weight	2½ lbs.
Operators required	**13**

Double-twisting:

On flyer-frames:	
One 240-spindle unit	
One 120-spindle unit	
One 80-spindle unit	490 spindles
Package weight	¾ lb.
On ring-doubling frames:	
Five 240-spindle unit (3-in. dia. ring, 5-in. traverse)	1,200 spindles
Package weight	½ lb.
Operators required	**14**

Package winding:

One split-drum finisher winder	40 spindles
Package weight	5 lbs.
Operators required	**8**

Some people call it

Straight-from-the-Shoulderism.

But whatever you call it, it's . . .

Be Candid—No Velvet Glove, No Iron Fist

Today's Way to Handle

FACE-TO-FACE with your subordinates, how do you act? When you give a command or discuss a work problem, do you do it bluntly, like the captain of a ship? Or do you soft-pedal your orders?

Chances are you use the latter technique. Most executives do. But a growing number of executives today feel that the kid-glove approach to human relations on the job is inadequate for the modern business world. They are turning instead to a middle-ground approach. What they are doing (and learning, too) may guide you to a better way of handling people.

Take a case like this one—a fairly common situation: Executive J. B. Kleesh is the man down the hall, and he's in trouble. Here's his problem: Kleesh has an up-and-coming assistant, Fred Goody, who is busily trying to pull the rug out from under him. Witness the time they were talking to the company president, Mr. Smith, about cloth reject rate:

"Our records on rejects show," Kleesh was saying, "that our percentage has gradually improved over the past six months."

Fred Goody interposed smoothly: "I've made an analysis, Mr. Smith, that shows the figures are deceptive. When you divide cloth rejects between old and new equipment, you can readily see that the rejects from the old are climbing—and it's only because of the new equipment that the over-all picture shows improvement. I would think taking a hard look at the performance of the old machines might call for a rebuilding schedule. . . "

After the conference, Kleesh says to Fred, "That was a clever idea of yours to break down the rejects that way." Then he adds somewhat plaintively, "I would have been interested in hearing about that analysis in advance, Fred."

Behind Kleesh's mild words seethes a volcano. "That sneaky little upstart was giving me the business right in front of the boss. How should I have handled it in the meeting? What can I do now?"

By AUREN URIS
Research Institute of America
New York City

COMMON CONFUSION

Kleesh's problem is one that bothers many an able executive. In technical matters, in administrative matters, Kleesh is an above-average manager. (We all commit occasional oversights—like neglecting to dig deeply enough into the reject situation.) But when it comes to handling the human factor he's unsure of himself.

Of course Kleesh is familiar with the traditional "human relations" approach, and he has given his problem with knife-in-the-back Freddy a lot of thought. He knows how he's *supposed* to deal with Fred:

1. Analyze Fred's behavior—find out the reason why he's doing what he's doing.

2. Use the understanding to satisfy Fred's emotional needs in a healthy way.

Well, Kleesh has done all that. He knows, for example, that Fred Goody is hungry for recognition, more power, more status. And, going along with Step 2 in this time-honored formula, Kleesh has tried to satisfy Fred's emotional cravings. He has fed Fred some juicy assignments, praised him for successful performance. Trouble is, these well-meant actions have brought on undesirable results:

First, they verified Fred's suspicions that he was a hotshot.

Second, he secretly viewed Kleesh's maneuverings as symptoms of appeasement.

Kleesh goes into the washroom, takes two aspirins, and stares at himself in the mirror. "How," he asks himself, "do I handle Freddy?"

TROUBLES UNTRIMMED

The difficulties that Kleesh faces with his assistant exist, one way or another, in many of our working relationships, up and down the line. The heart of the difficulty is that for many years a majority of management has been sold on the "walk-softly-and-carry-a-small-stick" rule.

The dominant approach to human relations in management has stressed the importance of persuasion, of "selling" people on a

Be Realistic—No False Values

Be Forthright—No Clouding the Issue

People

viewpoint or an action. If you want a subordinate to study an inefficient order procedure, for example, some "experts" will advise you to let him share the decision to start the project. If he's part of the project from the beginning, he'll take more interest in carrying it out.

But recently many executives have become disillusioned by the soft-sell approach.

"The trouble with many of the accepted methods of dealing with people," admits one management authority, "is that they are manipulative." In other words, to get compliance for an instruction, to win acceptance of an idea, the manager looks for a device or a formula that will help bring about the desired end in a way some have called "psychological trickery."

Once executives see all the implications of the soft-sell approach, they often become dissatisfied with it for two reasons:

- They feel that manipulation is vaguely dishonest—possibly even unethical.
- They feel it doesn't work well.

WHAT ALTERNATIVE?

Today's management-wise executive has been exposed to hundreds of thousands of words devoted to the human relations area. Some of the best brains in the business of management have tackled the problems of getting along with people. And they've come up with many,

Be Objective—No Overdoing Employee Rights

Be the Boss—But No Manipulating Your Staff

many theories. Their objective has been practical. The executive who can work well with others will gain two important benefits:

- More effective subordinates.
- Increased satisfaction of subordinates with their work.

Some executives who have become dissatisfied with the charm school of human relations have considered going back to an older approach that might be called the "stomp-hard-and-carry-a-big-stick" method of dealing with people.

This concept preceded the charm-'em idea. Here the executive, flaunting his authority, was expected to ride herd on his people—and usually did.

Fortunately there is another alternative. It could be called the candid approach, and it avoids the drawbacks of both extremes in human relations management theories —soft-sell and dictatorial methods.

HAPPY MEDIUM?

What is the candid approach to people? It can be illustrated by comparing three possible ways of handling a frequently tardy secretary—one who's been getting away with an impudent indifference for much too long a period:

The old-fashioned, tough-fisted method: "Miss Brown, you've been late too often. Come in on time, or it means your job."

The soft-boiled method: "Miss Brown, would you like to tell me about the things that interfere with your punctuality?"

The candid approach: "Miss Brown, starting on time is part of the responsibility you accepted when you came with us. I insist that you live up to the responsibility of your job."

Note that the final result of the candid approach is the same as that of the old tough-fisted method—but there is an important difference.

The authority of the boss comes to bear on the problem in the old tough approach.

The responsibility of the employee is called into action in the candid approach.

NEW PRINCIPLES

What is the essence of straight-from-the-shoulderism? Why should it work? Here are some answers:

1. Be candid—Take the problem of our friend J. B. Kleesh. Kleesh had devoted a lot of brainwearying thought trying to figure an angle. How, he had been asking himself, could he put Fred Goody in his place without drawing blood? Stumped by the alternative of too hard or too soft, he had taken neither action.

Using the candid approach, he might have said something like this:

"Fred, I know we all like to look good in front of others, but in our meeting with Mr. Smith, as in other instances, you've gone out of your way to look good at my expense. I believe you're fully aware that you are undercutting me with Mr. Smith. I take this to be unacceptable behavior. If there are any repetitions of this you will have cause to regret it. From now on if you have any bright ideas, I would like you to present them to me first."

2. Be realistic.—One of the reasons for the weakness of the charm-school approach is that it is based on an assumption that the proper behavior for a superior is to win the liking of subordinates. Further, the entire business atmosphere supposedly shines with harmony and sweetness and light.

The candid approach takes into account the harsh realities. At times a superior must say, "I'm sorry you oppose my point of view so strongly, but I've taken all factors into account and have made the decision not to extend any more credit to the XYZ Company."

3. Be forthright—and clear. The straight-forward approach eliminates the fuzziness that too often clouds job relationships. "I don't know where I stand with him," is a frequent—and justified—protest directed at a superior who uses the traditional approach in dealing with people. Here's what happened when an advocate of the charm-school held a merit-rating interview with a subordinate who had been doing an uninspired, apathetic job:

"Tom," says the executive, "you have been with us a long time and generally, you're doing a good job." (This is standard operating procedure. You're supposed to start with a favorable comment.) "However," continued the executive, "in the area of developing ideas and suggestions, you've been falling down. You haven't been showing as much initiative as I would like to see." (Here the executive, also according to S.O.P., puts the bite on the employee.) "Now I'm sure with your proven ability," he concludes, "you'll be able to improve in the future."

As Tom goes out the door, the executive thinks to himself, "Well,

I certainly made it clear that he's got to improve."

But Tom? Here's how he assesses the interview to a friend: "The boss told me that generally, I'm doing a good job."

Merit rating, using the candid method, would leave Tom with a much more accurate idea of his boss's evaluation of him. The executive might say: "Tom, in the routine area of your job you're turning in an adequate performance. But in the more important area of developing ideas and suggestions, I've been badly disappointed. I want to make it quite clear that there's room for you to show improvement."

Here, the issue isn't clouded with phony praise—no sugaring a pill to make it more palatable. The important thing is to get across the proper emphasis in the evaluation. Once the executive has done this in his own mind, the only problem is to call the shots as he sees them for the employee.

4. Be objective. The current human relations philosophy stresses the idea that every person, just because he is a person, has an inherent dignity, which should be considered in any work situation. It is one of his natural rights.

There is nothing wrong with the idea of the individual's dignity. But it is more realistic to say that the individual has claim to dignity and respect because he's willing and able to take on responsibility in a competitive world. There is no reason to overdo the philosophy of dignity. Make it commensurate with his responsibility.

5. Be the boss. A major reason why the traditional approach to human relations is manipulative is that it derives from a superior-subordinate relationship—between an executive and his assistant, for example. And that is a fact of business life you can't get around. There *is* a difference in the relative power and authority individuals wield from one echelon to the next.

But once the superior-subordinate relationship becomes a major factor, it is then difficult to develop a relationship in which the superior doesn't attain his objectives by either conscious or unconscious manipulation.

The difference is this: The direct candid approach does not try to obscure or evade this reality. The forthright executive, for example, will say to a subordinate: "I'm sorry we disagree, but because I will be held responsible for the final result, it's only fair that this be done my way."

WHAT ABOUT TACT?

An appropriate question arises: What about tact? Does forthrightness demand that you forgo the use of what the dictionary defines as ". . . sympathetic perception of what is fit or considerate in dealing with others"?

Not at all. Forthrightness does does not mean bluntness, rudeness, or discourtesy. It means calling a spade a spade. It means communicating true feelings, not phony made-up ones. It means avoiding the use of "techniques" and relating to people in a direct, honest way.

Tact will continue to be a part of your dealing with people, but it will not be used as an insulation to shield people from true facts and values. For example, if you must tell a subordinate that he take on an assignment you know he'll dislike, tact might suggest that you broach it at a time when he's likely to be less dispirited by the news —right after he's been successful in completing another project.

But when you tell him about the new task, go about it matter-of-factly, without expending words or energy trying to sweeten the sour assignment. After all, he's getting the assignment for a reason. The candid approach leads you simply to explain the reason for the choice. You shouldn't have to "sell" it to him—since the facts justify giving him the task.

BONUS BENEFITS

This saving on unnecessary expenditure of thought and energy is in itself an important benefit of the direct method.

The executive, convinced that he should deal directly and candidly with the people and situations that confront him, will find the fog of indirection no longer a part of his managerial outlook. Being able to call a spade a spade, bluntly, honestly, he finds to his pleasant surprise that he himself is a beneficiary of this new approach to dealing with people.

An additional benefit of the new approach is a psychological one. The executive who employs straight-from-the-shoulderism as a way of management life will become most effective of all managers—the purposeful man. The reason: He is more closely in touch with reality —unvarnished, solid. He must first be honest with himself in order to be candid with others. The considerable amount of self-delusion many of us suffer from is likely to disappear.

The executive who knows simply and clearly what his goals and values are, and how to indicate them directly to colleagues and subordinates, may find himself with a priceless advantage in his dealings with people.

Latest Word on Quality

Warp preparation—hosiery inspection—wet processing control. These are only three of the subjects stirring interest at the spring meeting of the Textile Quality Control Association in Charlotte. Here are highlights.

PREPARING GOOD WARPS

For quality control in warp preparation, think about winding, warping, and slashing. Include the following data in your compilation: type of operation; date, time and machine identification; yarn and style identification; causes of end breakage; names of operator and frequency checker.

Winding—In winding, consider two essentials: building a good package, and keeping the yarn clear of slubs and other defects.

Select the proper type of slub catcher for the yarn you are running. The fixed-blade type is usually satisfactory for processing singles yarns of average or below-average breaking strength. Light blades are easier to actuate and are particularly useful for Dacron-cotton blends. Also, you can obtain electronically actuated blades if standard blades are not satisfactory for use.

Warping—Lost ends and drawbacks give the most trouble at warping. In many instances, bad stop motions and brakes are the cause. For best results—stop motion should be in front of the creel.

With cone-type creels you should see that (1) drop wire is heavy, (2) slot in drop wire gives plenty of clearance between wire and electrode, and (3) guide rods are positioned so that drop wire stands erect and set so that contact point on drop wire is about ½ inch above contact on electrode.

Slashing—First determine proper size formula. Then check slasher for creel and section-beam alignment, condition and specification of reed at back of slasher, section-beam tension, condition of rubber-covered rolls, alignment and identical circumference of bottom rolls in double-roll size box, operation of condensate traps, oscillation of presser roll and edges or burrs on fiber disks, and smoothness and size of split rods. *W. B. Croxton, Glen Raven Cotton Mills.*

INSPECTING HOSIERY

Quality control in hosiery is different. The finished product must be 100% inspected.

Control at Burlington Hosiery Co. includes the following:

1. Knitters inspect goods coming off their machines.

2. Gray-goods inspectors look for defects missed by the knitter and for looper, seamer, and yarn defects and pulled threads.

3. Spot inspectors make around-the-clock checks on knitters, inspectors, and menders.

4. Central quality control checks hosiery taken at random from the gray mills' inventory.

5. Fixers inspect goods at seamless machines for streaks, defects.

6. The quality-control supervisor tints one stocking from each machine. If streaks show up, he shuts the machine down until the cause is discovered and corrected.

7. Length-control operators check seamless and full-fashioned stockings as they come off the machine, then make sizing adjustments.

8. Central quality control makes biweekly tests. Gray-goods supervisors check seams daily for stitches per inch, stitch uniformity, tightness, and other properties.

9. Inspecting operators in the finishing plant look for defects missed by gray-goods operators and those that might occur in finishing. They also pair and measure. They are rechecked by central quality control. *James McDonald, Research Center, Burlington Hosiery Co.*

CONTROLLING PROCESSING

To get highest quality at wet processing, use the best chemicals and dyes, keep equipment up-to-date and in good repair, maintain step-by-step controls, and set up lab control to doublecheck plant results.

To control wet processing, check:

1. Tensile and tear strengths of gray fabrics.
2. Alkalinity of caustic or alkali during boil-off before bleaching by periodic titrations.
3. Bleach baths by periodic titrations to maintain oxidizing power and level buffering action.
4. Fluidity after bleaching.
5. Absorption of bleached cloth.
6. Reflectance (to measure degree of whiteness).
7. Alkali in vat dyeing by titration, and reduction potential of hydro by multivolt readings.
8. Caustic left in mercerized fabrics. *Walter T. Holiday, Riegel Textile Corp.*

MEASURING FIBER LENGTH

A fibrogram (facing page) is simply a plane graph showing the relationship between two variables—probability and length.

The fibrogram shown here is based on the probability theory. For simplicity's sake, a sample of one fiber represents distribution in a hypothetical case. All the fibers in the population are the same length. The top figure shows one of these fibers.

Assume that a fiber is caught at some Point X along its length, and X is a random variable. Question: What is the probability that the fiber will extend to the right a distance equal to b or longer? Probability of success is the ratio between the ways to succeed and the sum of the ways to succeed or fail. In this case, the event will succeed any time Point X falls within Length a.

The probability for different catch points can be calculated:

$$p\ (X \geqq b) = a/(a + b)$$

The probabilities for nine values of b are shown in the table. These values are plotted in the lower figure. The graph shows that a fiber caught at random along its length will extend to the right ½ of its length or longer 50% of the time. It will extend to the right ⅞ of its length or longer only 1.1% of the time.

If a line is tangent to the curve at L equals zero, it will intersect the length axis at a point equal to the mean fiber length.

A tangent to the curve coincides with the curve over its full length, intersecting the length axis at eight units—the mean length, and in this example the only length.

The same reasoning used here for one fiber length can be applied to populations in which there are different fiber lengths. *C. B. Landstreet, Cotton Quality Investigation Laboratory, USDA*

SAMPLING FOR QUALITY

Sampling serves one to two general purposes:

It ascertains within acceptable limits of error, characteristics of a large quantity of product. And it detects uncontrolled changes in a process—or assures that such changes have not occurred.

A sample is taken from a large aggregate of material called "population"—yarn, pairs of hose, cones, etc. As little as 10 inches of yarn can serve as a basic test specimen. In this instance, think of the population as consisting of all possible 10-in. specimens.

Sampling theory must consider sampling errors. Random variation in the length of women's hose can be expressed quantitatively by a standard deviation index (σ). About 68% of stocking lengths lie within $\pm 1\sigma$ of the mean, 95% lie within 2σ, and almost all (99.7%) are within 3σ. By properly choosing the number of samplings, you can reduce these limits of error to whatever size you need.

Sampling errors vary with the type of sampling used. Common types are completely random sampling, sampling to estimate the variation coefficient, and multistage sampling. *Dr. R. C. Hader, North Carolina State College.*

WASTE DOWN, QUALITY UP

A waste-control program must reduce cost without lowering quality.

Some waste, of course, is necessary. In determining how much waste to accept, consider grade, staple and quality of raw material and variety, type, and quality requirements of the end product.

In cleaning trash from natural fibers, your quality-and waste-control people must work together to remove minimum fiber. In later processes, variety of style and quality requirements determines the amount of waste. For example, waste removed from carded-cotton goods may average only half as much as that removed from combed goods.

Quality and waste also are closely related in the saleable or reworkable waste classifications. Waste factors entering into this are lap waste, uneven yarn, malformed packages, soiled yarn, break-outs, pull-overs, etc. *William Ray, Southeastern Engineers, Inc.*

FINISHING PROBLEMS

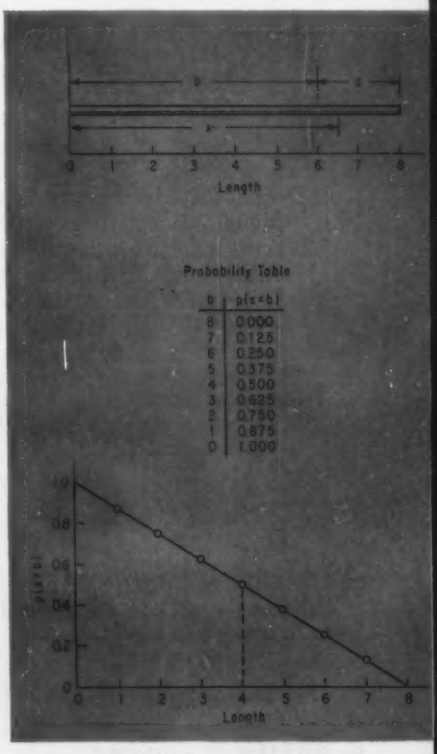
Gray-goods seconds mean finishing seconds. A few months ago the Lyman (S. C.) Division of M. Lowenstein & Sons was running a plain-dye combed number, processing gray-goods from four different mills. Cloth from one mill was superior to that from the other three. Result: The company swung more business to the good mill and curtailed purchases from the others.

Grading goods from a merchandise point of view is different from the mill method, which incorporates the Worth Street Rules. Finishing plants assume that gray-goods have been properly inspected and therefore they do not accept the responsibility for inspection before processing these goods.

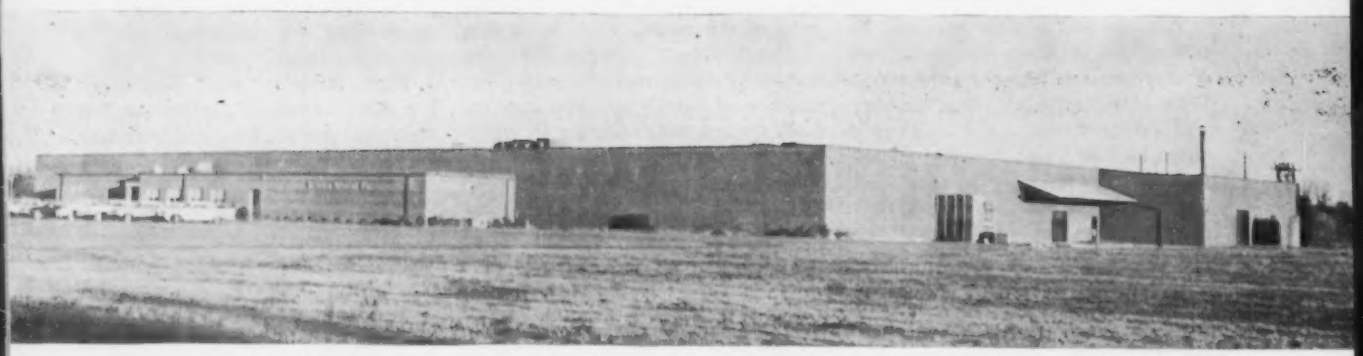
Most finishing plant operations are in rope form. Therefore the first chance to inspect the cloth is at dyeing or printing—usually casual inspection because of machine speed. Even though you can detect warp streaks, filling bands, and temple marks, at this point the finishing is practically completed. Thus, a finishing plant may lose money if gray-goods are defective.

Fabric defects to look for at finishing plants are substandard tensile strength, tight selvages, thick and thin spots, reediness, filling bands, temple marks, excessive neppiness, excessive mill oil, and general uncleanliness of goods.

Before placing an order many customers now inquire as to the source of gray-goods, and some even specify that the goods must come from a known quality mill. All of this adds up to the fact that quality control must be exercised to the fullest at the gray-mill level. *Paul Kaufman, M. Lowenstein & Sons.*



THIS FIBROGRAM represents a special case where all fibers are the same length.



LONG, LOW, AND STREAMLINED, this building is one of the newest and most modern textile mills in the country.

Quickly Built, Quicker to Grow

Here's how one company tackles the problems of building mills in eastern North Carolina—formerly a no man's land for textiles. Sign of success: The size of its newest plant doubled in the first year of production.

TOO HOT, too humid, and no skilled labor. That just about sums up how textile management felt about eastern North Carolina's coastal plain as a location for textile mills a few years ago. No one ever thought that a mill in that area would pay off—much less grow.

But here's a company that solved its problems, and solved them so well that it has doubled the size of its newest plant in the first year of production. Its chief weapons: first-class equipment to minimize manpower needs, a training program to provide the right kind of people, and air conditioning to solve the temperature and humidity problems.

A FAST-GROWING MILL

The newest mill in the coastal plain of North Carolina is National Spinning Co.'s Whiteville plant. It's the third mill the company has built in the area in the past six years. And it typifies the firm's progressive planning.

By WILLIAM G. ASHMORE
Associate Editor
Textile World

The plant was built by Daniel Contruction Co. in three months—and three months later it was in full production. The mill building was completed in January 1960, and by April 1 it was turning out its planned capacity of high-quality 8s to 40s (110 Tex to 22 Tex) singles and plied-worsted yarn spun from 54s to 70s grade-wool tops.

By April 1961, one year later, the building was twice as big, and the new addition was in limited production. Machinery is still being added as production is needed.

The plant was conceived by key company officials — Philip Leff, president (N. Y.), Carl Leff, vice president, Joseph Leff, treasurer, and P. L. Freeman, secretary. They are all old hands in the worsted business, and recently they've expanded into man-made fiber processing. In 1954 they built an American System mill to spin worsted and man-made fibers at Washington, N. C., and in 1957 they added a second plant to make Banlon yarn.

When the Whiteville plant was first announced last year, President Leff said: "The new plant will add between $4- and $5-million to North Carolina's gross product." With the new unit in production, the gross product is expected to more than double.

Take a look at the original building —it's highly functional. The unit is 192x360 feet over-all. Of the 69,120 square feet of floor space, some 11,500 square feet are used for warehousing.

Outside walls are constructed of jumbo brick, lined with glass-fiber insulation. Ceramic tile is used on the inside walls. Cork and mica insulate the poured-concrete roof. Floor is poured concrete with Kalman finish. Distance from floor to ceiling is 19 feet, 8 inches at one end of the mill and 17 feet, 8 inches at the other. This gives the roof a 2-ft. slant to facilitate drainage. There are ten 30-ft. bays across the room and four 48-ft. bays lengthwise.

Floor space added—The new

How Material Flows Through the Plant

Stock flows fast through National Spinning Co.'s Whiteville plant. Here's an easy-to-follow chart.

1. **Warehouse**—Wool tops are weighed on arrival, palletized, and fork-lifted into warehouses.

2. **Pin Drafting** — Wool tops are trucked to Pin Drafters in crates that hold 2,500 pounds each.

3. **Roving**—Cans of sliver are moved from Pin Drafters to roving frames in trucks, each with eight cans.

4. **Spinning** — Roving packages are carried in trucks to storage for spinning. Roving is unloaded into spring-bottom spinning-doffing carts.

5. **Winding**—Spinning bobbins are doffed into slatted trucks, moved to storage near winders, delivered to winders from same trucks. Some cones go directly from winders to packing.

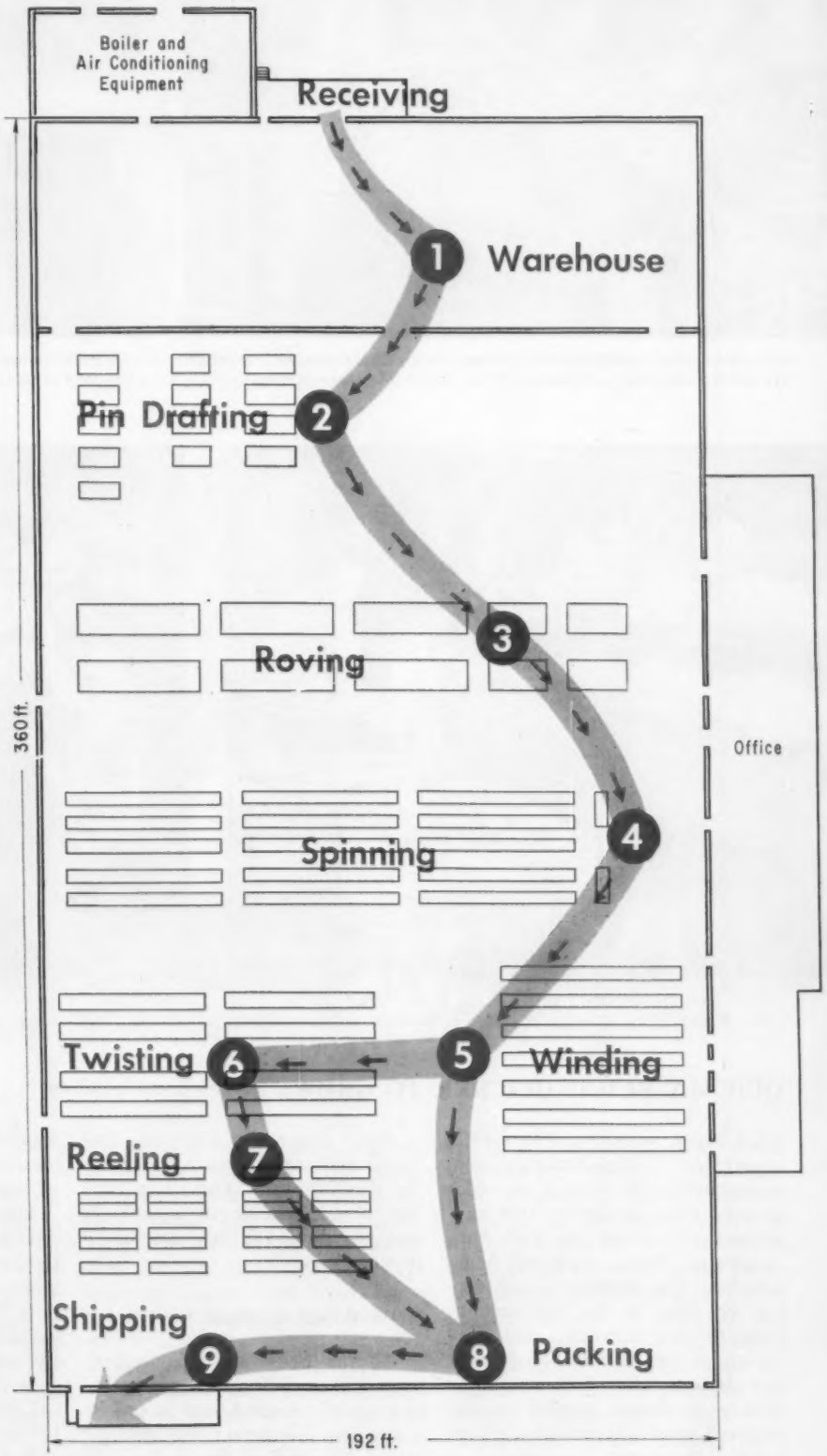
6. **Twisting** — Winder cones are placed on cone rack mounted on casters and pushed to twisters. Cones are creeled from rack.

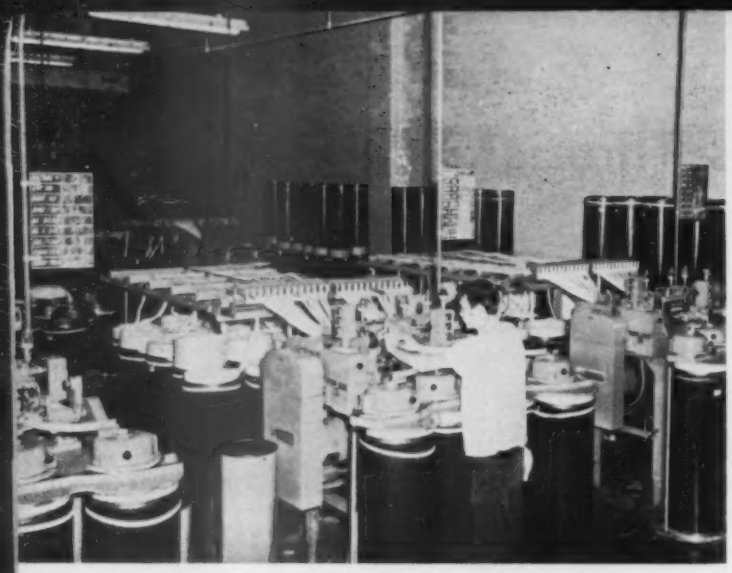
7. **Reeling**—Twister bobbins are doffed into slatted trucks, stored near reels.

8. **Packing** — Skeins are doffed into slatted trucks, moved to inspection area, inspected, placed in shipping cartons on dolly.

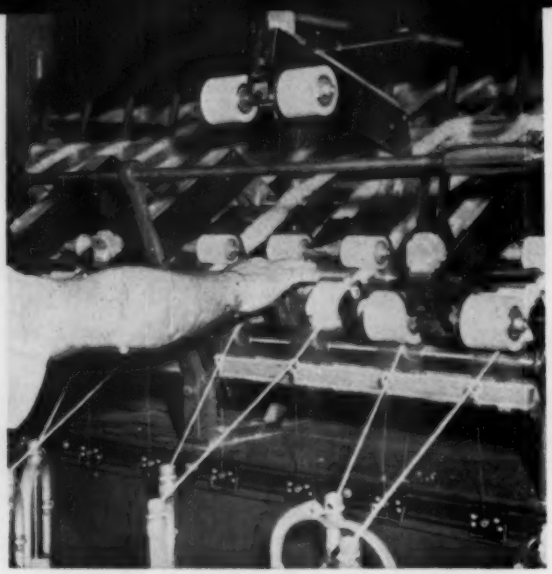
9. **Shipping**—Carton is pushed to strapping area, weighed, stenciled and shipped.

Note: Production flow will be somewhat different in the company's new addition. Machinery will be placed parallel to the long wall instead of crosswise. Flow will be across the room.



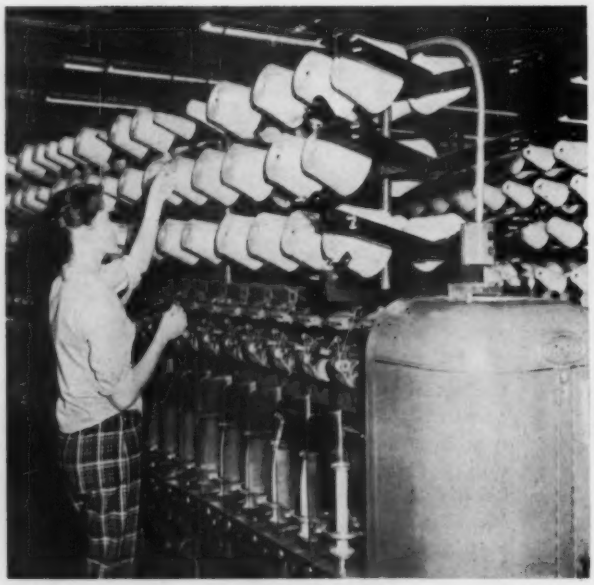


PIN DRAFTING AND BLENDING is done by three processes to produce 65- to 90-grain sliver. Machines run at 1,050 drops per minute.



ROVING frames can be quickly adjusted to draft 2½- to 4-in. staple. Hank roving ranges—1 to 4.

YARN CONDITIONING gets a boost from slatted trucks. Durwood Moore, general overseer, inspects bobbins before winding.



TWISTING is done on machines that have 3-in. front rolls and 9-in. stroke. Speed ranges from 90 to 154 rpm.

QUICKLY BUILT, QUICKER TO GROW . . . *Begins on page 44*

192 x 360-ft. addition, with 69,120 square feet of manufacturing area, is attached to the rear of the older section. There are twelve 30-ft. bays across the room and four 48-ft. bays lengthwise. Machinery is still being installed. The addition is constructed the same as the first section. Products are identical, and machinery is similar. But production flow is somewhat different. Machinery is placed parallel to the long wall instead of crosswise. Flow is across the room.

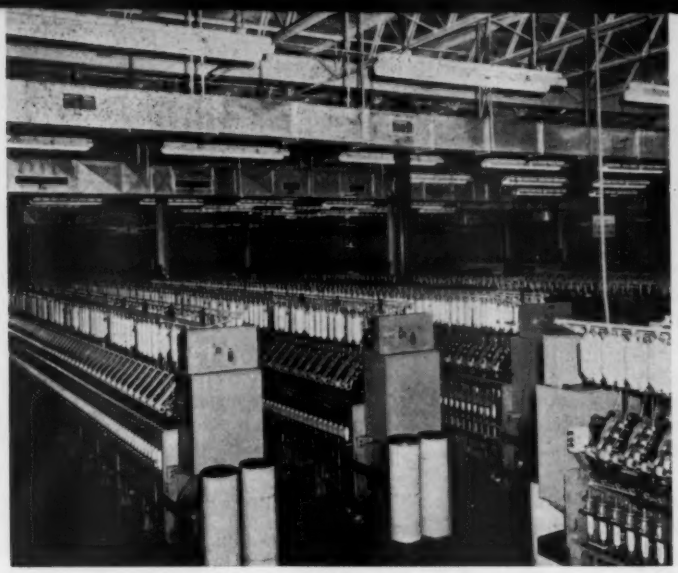
Aisle spacing is narrower, and traffic and storage space are along the dividing wall. Two extra bays and closer spacing of equipment will give unit a higher machinery concentration.

HOW WOOL IS PROCESSED

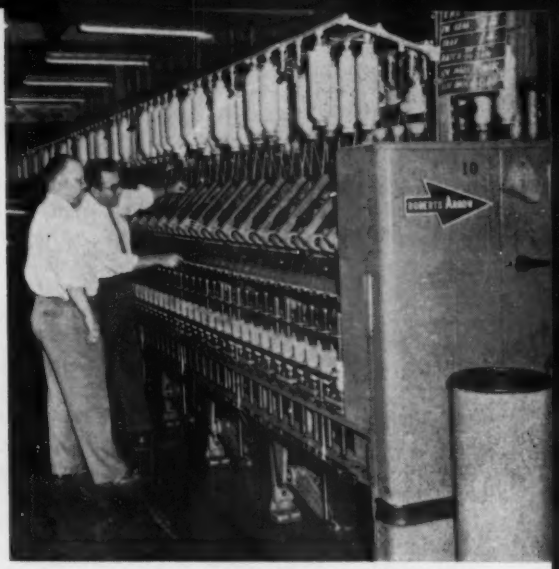
Wool in the form of tops, ranging from 175 to 240 grains per yard, is received, weighed, and stored in a spacious warehouse that extends across one end of the mill. This warehouse also contains bins and a classification table for various types of waste.

From the warehouse the tops go directly to 13 Warner & Swasey Pin Drafters set up for the following three operations:

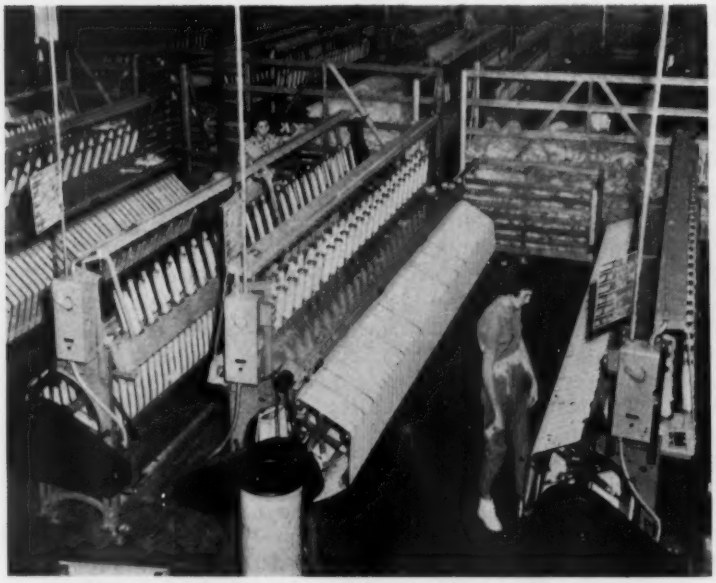
1. Five machines (Model 2350) —1,050 drops per minute, 6 ends, 160- to 190-grain sliver.
2. Four machines (Model 3650) —1,500 drops per minute, 5 ends, 117-to 133-grain sliver.
3. Four machines (Model 3680)



SPINNING frames for long fibers dominate the manufacturing area. Bays are very wide, and roof supports are structurally ingenious.



MANAGEMENT (Plant Manager C. Quirion and General Manager H. Scoggins) checks spinning quality.



REELS have 50 spindles each. Each operator tends two machines that run at 250 ypm. The machines produce 2½- to 8-oz. skeins.

SKEIN INSPECTION, the last step before packing and shipping, is handled by this inspector.

—1,500 drops per minute, 5 ends, 65-to 90-grain sliver.

Then two Whitin Quick-Set 12 x 6 and five 10 x 5 one-process roving frames draft from 12 to 18 on 1-to-4-hk. roving. Spindle speed ranges from 850 to 1,100 rpm., with a front-roll (2-in. diameter) speed of 120 to 124 rpm. A major advantage of these frames: They can be quickly adjusted to handle from 2½-to 4-in. staple. Three operators per shift run the department.

Eighteen Roberts Arrow WM-2 long-fiber spinning frames, capable of spinning any yarn type from all natural or man-made fibers up to 8 inches long without adjustment, are next in the production-flow line. At present, National is spinning 2½-to 4-in. wool fibers with a draft ranging between 12 and 25. From 8s to 40s (110 Tex to 22 Tex) yarn is made at spindle speeds ranging from 4,650 to 8,500 rpm.; front-roll speeds are 105 to 150 rpm. Rings are 2¼ and 3 inches in diameter. Gage is 4 inches.

The 240-spindle frames feature a special ratch that gives great flexibility in drafting and fiber control. Unitized sectional construction in 48-spindle lengths permitted rapid erection and will simplify any future lengthening or shortening of frames.

Cleaning and maintenance present no special problems. Frames are blown off daily, and rolls are picked each shift by a special roll picker. Spinners wipe down rails and do other minor cleaning operations. Traveling cleaners have not

been needed so far. Frames have not been in use long enough to set up a mechanical maintenance schedule, but the company expects to overhaul them once a year, and have the spindles plumbed twice a year. Travelers are changed weekly.

One Foster and five Leesona winders make 2-lb. cones for shipping or 3½-lb. cones for twisting. The units have 50 spindles to the side and run 450 to 600 ypm. An operator runs one side.

In the twisting department 5 Whitin Model R and 10 Atwood 10B machines are in use. Both have 9-in. strokes and make 7- to 10-oz. packages of two-, three-, and four-ply yarn. The 3-in. front rolls run from 90 to 154 rpm., with 12 to 15 turns per inch.

At reeling, the last process except for inspecting, packing, and shipping, each operator tends two 50-spindle Lindsey-Hyde machines running 250 ypm. The 2½- to 8-oz. skeins are carefully inspected for twist, kinks, slubs, and any other imperfections.

RECRUITING—TRAINING

Hiring was started in December 1959, by H. D. Scoggins, general manager of the Southern Division of National Spinning Co., and Charles Quirion, manager of the Whiteville plant.

From 50 applicants previously screened and given aptitude tests by the North Carolina Employment Security Commission, Scoggins and Quirion accepted four persons to be trained as spinners and turned them over to supervisors brought down from the company's Washington mills.

As soon as the four were trained, they were made instructors. They handled other newcomers selected directly by the management from local residents. As fast as newcomers became skilled, they too were made instructors. Only winder and reel tenders were trained in full by Washington personnel.

Another source of good labor came from the men hired to install and erect the machinery. Many stayed with National. From all these sources, Scoggins and Quirion recruited and trained their full labor complement in 90 days. The company now employs some 150 people.

National doesn't give aptitude tests for employment, but Herbert Stauffer, personnel manager (and cost accountant), carefully looks into the background of each applicant. Age, number of children, availability of child care, transportation problems, previous employment, general appearance, height, weight, and educational background are all given consideration. More than 75% of the present labor force are high school graduates.

General Manager Scoggins believes in pushing ahead his supervisors as fast as they can take on more responsibility. For example, he points out, "only four years ago Plant Manager Quirion was second-shift overseer of the Orlon operation at Washington. In 1958 he became superintendent of the Banlon plant, and in 1959 manager of the new Whiteville plant. By the same token, Durwood Moore, general overseer of winding, twisting, reeling, and packaging, was a section man at drawing four years ago. A year later he became overseer and last year general overseer. Other employees have also progressed."

Operators with supervisory potential are given special attention and on-the-job training by overseers. At the same time, they are encouraged to take courses from International Correspondence Schools, for which the mill will pay half. In this way, Scoggins expects to maintain a reservoir of potential supervisors ready and willing to fill any opening that may occur in the company.

TOP PLANT SERVICES

Air conditioning—All air conditioning is by Carrier Corp. A 180-ton refrigeration unit maintains temperatures in the manufacturing areas at 70 to 82 F. Air is washed and cooled in Rotaspray units located on the roof above the various manufacturing areas. Atomizers supplement the humidity supplied by the Rotaspray. Relative humidity ranges from 60 to 80% in the various departments.

Rotaspray units provide high saturation efficiency to put more moisture in each pound of air supplied. This also gives cooler air. In operation, outside air is drawn into the equipment through a roof duct and mixed with lint-laden return air from the manufacturing area. An axial-flow fan at the entering side of the spray chamber directs the air through several banks of spray nozzles to produce high-density atomized water.

Lint and foreign matter are ejected from the orifice of each nozzle, made of a synthetic rubber that swells to become largely self-cleaning. At the end of the chamber, a rotating eliminator wheel creates a wall against unvaporized water droplets and foreign particles, yet it passes conditioned air freely.

The rotating movement of the eliminator wheel prevents collection of lint on the wheel, which throws off lint by centrifugal force. Fan blades are kept clean in the same way. All other interior portions are cleaned by flushing action of the spray nozzles.

Water and entrained particles drain into a combination collection and separation tank where a cylindrical strainer automatically removes foreign matter for subsequent disposal. No water towers are required here.

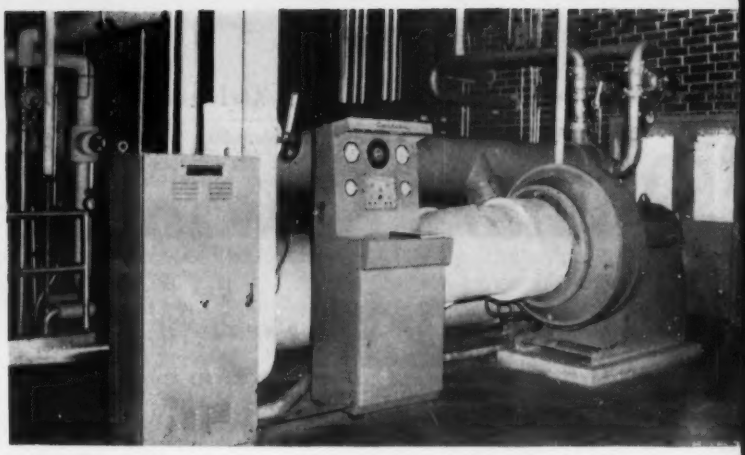
Electric power—The mill operates on 650 to 800 amperes and 440 v. for all equipment except lighting, which requires 270 v.

Switchgear has air-circuit breakers, and controls are compartmented to correspond with different departments and groups of machines. Most wiring is beneath the floor. In the spinning area, bus ducts under the floor permit the machinery to be shifted about without tearing up the floor.

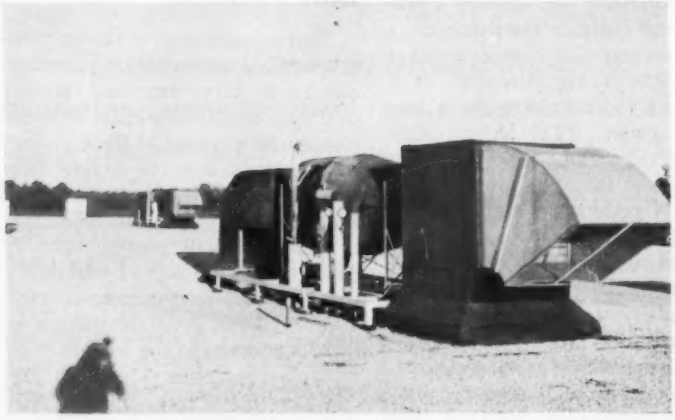
Working areas are illuminated by Westinghouse fluorescent lamps mounted 14½ feet above the floor. Footcandle output is 70 over dense machinery concentrations and 50 over open traffic space.

Heat and compressed air—Steam is supplied by a 150-hp. Cleaver Brooks boiler that produces a 100-lb. pressure in the boiler room and delivers 15 pounds to the manufacturing areas. One 80-lb. and one 140-lb. Ingersoll Rand compressor produce compressed air.

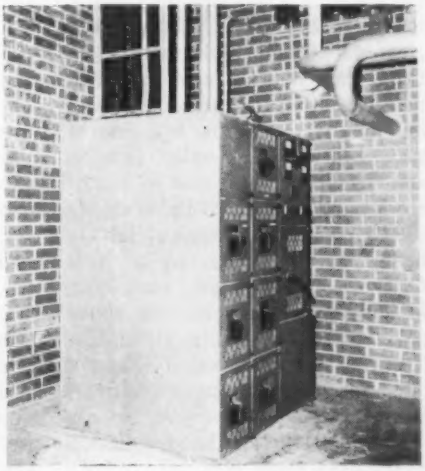
STEAM, mostly for heating, comes from this 150-hp. boiler, checked by Norman Heath, master mechanic.



CHILLED AIR in all manufacturing areas comes from a 180-ton refrigeration unit. Office, shop, and laboratory each have separate units.



COOL AND HUMIDIFIED AIR for areas below comes from roof installations. These units serve three different manufacturing areas.



ELECTRICAL SWITCHGEAR is divided into compartments serving a special area or machine.

WASTE CONTROLLED

When the plant manager receives an order, the office works up a "make-up" sheet that contains all pertinent data such as weights, blend, sizes, machine speeds, and settings for each department in the mill. At the same time, an "all here" ticket showing the number of pounds to be processed in each department is made up. Copies of both the "all here" ticket and the "make-up" sheet are sent to the general overseer. The "all here" ticket starts off with the basic batch of stock and accompanies it through each process. Each department head gets a copy of the "make-up" order.

These forms are the basis for a continuous inventory system that tells exactly where each lot is and the number of pounds of each number on hand. Figures are fed to the office at the end of each shift where a production clerk tabulates them. From the data, the company can account for 100% of the stock in process at all times, and can determine how much is blended.

Waste is weighed at each machine, for each operator at the end of each shift. This operation is carried out so carefully that the physical weight of the waste is always within 0.5% of the book inventory. After being weighed the waste is carefully graded and stored in bins in the warehouse.

QUALITY CONTROLLED, TOO

National Spinning Co. takes quality control seriously, and the Whiteville plant has one of the most up-to-date laboratories in the industry. A partial list of equipment in use includes: a Pacific evener for testing of tops, Pin-Drafter sliver, and roving; a Uster yarn evenness tester; Shadowgraph; Resistiro Rex for testing draft and twist; a Precision Soxhlet tester for extracting oil; a Reynolds & Branson nep counter; a Suter staple diagram tester; a black-hair tester; a Micro Projector; an Emerson conditioner; and a Brabender moisture tester. Most of these instruments are used every day.

Two meetings—one in New Orleans, the other in Memphis—highlight . . .

What's New in Cotton Research

Ringless spinning grabs the spotlight at the annual conference of cotton researchers, administrators, and collaborators sponsored by a division of the U.S. Department of Agriculture in New Orleans.

TWO HUNDRED textile men buzzed over a new spinning device that eliminates the conventional ring and traveler and puts high-twist yarn on any size or shape package instead of the conventional bobbin. The machine was one of two experimental units demonstrated during a side visit to Southern Regional Research Laboratory's (SRRL) cotton mechanical lab—a high spot of the meeting at New Orleans. SRRL men were also key speakers at the meeting sponsored by the Southern Utilization Research & Development Division of the U. S. Department of Agriculture (USDA).

The "spindle" of this new device is simply a metal tube with a hole through one side and an open end. The tube, mounted horizontally beneath a drafting element, revolves at a high rate of speed and draws the fibers through the side hole and out the end to the takeup package.

Vacuum action sucks the fibers from the drafting element so there is practically no chance of end breakage in this area. Loose fibers are picked up automatically.

The apparatus in its present state of development can produce medium-coarse yarn at rates equal to those of standard spinning frames. And it can produce yarn packages that are not limited by ring diameter in almost any size and shape. Direct labor cost for winding should be materially reduced because this operation is incorporated in the spinning machine.

One mill man's awed reaction: "I'm almost afraid to tell my superiors about this machine. They'll say I saw it on Bourbon Street."

Full details of the spinning machine will be published soon so that the industry can develop a prototype and evaluate the machines.

The second unit demonstrated—and it has a big potential—is a machine for determining trash content of cotton. (The Shirley Analyzer, standard machine used for this purpose, has a production rate of 2 to 4 pounds per hour. It requires 15 minutes to test a single specimen, or one hour to evaluate a sample in accordance with ASTM procedure.) The new laboratory-size analyzer, incorporating principles of the SRRL carding cleaner, will operate at high speeds. Preliminary evaluation indicates the unit can remove 95% of all foreign matter from cotton at a production rate of 30 pounds per hour. On this basis, a bale of cotton could be analyzed for trash content in five minutes. A final model will be developed by the end of the year, say SRRL researchers.

In addition to these new machines mill men also viewed SRRL's improved integrated cleaning system. The new system is composed of an opener-cleaner equipped with a new aerodynamic device that removes 35 to 45% of remaining trash at 400 pounds per hour.

WHAT THE SPEAKERS SAID

Research data highlighted at New Orleans covered such varied subjects as blending cottons with contrasting fiber properties, the effect of short fibers on spinning performance, and the effect of heat on cleaning. Here's a rundown on what the speakers said:

HOW TO BLEND

Recent advances in textile post-preparatory processing technology and new harvesting and ginning practices are forcing mills to blend cottons contrasting in fiber properties. Here's how to obtain fiber homogeneity, according to Louis A. Fiori and Gain L. Louis, SRRL:

1. Feed small cotton tufts of equal size to the hopper feeders.
2. Feed by weight, not volume.
3. Maintain constant density of the cotton mass in the feeders.
4. Arrange mixing plan to take care of the "time-space" factor either by preblending or by other means in preparatory operations.

SHORT FIBERS HURT

Short cotton fibers (⅜ inch and less) have a measurable influence on both product quality and processing influence. A recent study reported by John P. Tallant, Louis A. Fiori, and R. J. Cheatham, SRRL, concludes:

1. Increases in short-fiber content degrade yarn strength (both skein and single strand), yarn appearance, and fabric appearance.
2. Increasing levels of short-fiber content, while decreasing the maximum strength available from a cotton, do not affect yarn twist required for maximum strength.
3. The relationship between spinning efficiency and short-fiber content for print-cloth yarns (30s

[20 Tex] and 40s [15 Tex]) is complex and is strongly influenced by spindle speed, yarn size, and yarn twist. Increases in short-fiber content decrease spinning performance.

DAMAGE REVEALED

A new microscopical study of various kinds of damage cotton may suffer in mechanical processing, finishing, and use, indicates—according to M. L. Rollins, F. V. deGreasy, J. H. Carra, and V. W. Tripp, SRRL—that:

1. Cotton turns yellow after five hours of exposure to air at 120 C. Samples heated for two hours at 200 C. turn brown.

2. Acid damage is readily shown when the fiber is immersed in an alkaline solution. With the electron microscope, it is easy to see the short nucellus of hydrocellulose.

3. Cotton exposed to gamma, high-energy electron, and thermal-neutron radiation can be differentiated from unexposed cotton by microscopical observations of samples stained in Nile Blue sulfate.

4. Abrasion damage under the light microscope shows up as longitudinal splitting of the fiber, fragmentation of broken ends, mashed or bruised fibers, and clean sharp breaks. Resin-treated fabrics have a very low flex life.

CLEANING EFFECTS

Removal of moisture by heat increases the efficiency of cleaning processes—but it also alters some fiber properties both temporarily and permanently. Fiber length decreases and short fiber content increases during the ginning of too-dry fibers. Why? James N. Grant, Edith Honold, and F. R. Andrews, SRRL, said, because temperature and moisture gradients in drying cotton produce temporary changes in fiber strength and brittleness, increasing fiber breakage.

Permanent changes in fiber physical properties from gin heating are small, but the composite effect of many small changes apparently affects spinning behavior. If deterioration in spinnability could be linked conclusively with definite causes at various production stages, present processing problems might approach solutions agreeable to all groups involved, the SRRL researchers added.

Cotton quality—why it's needed and what can be done about it—kept textile men thinking at the recent Cotton Marketing Conference & Research Clinic in Memphis. Here are the highlights of the three-day seminar:

MANUFACTURING DEMANDS

"Strength in cotton is paramount. Along with strength goes mature fineness. Let's have length and more length in cotton. Grade can be as phony as a three-dollar bill."

That's how Joe L. Delaney, general superintendent of Joanna Cotton Mills Co., Joanna, S. C., dramatically summed up fiber needs in manufacturing for the Memphis, Tenn., conferees.

Pointing out that strength is vitally important, Mr. Delaney cited instances in which the only way his company could satisfy customers was to give them more and more strength in cotton fabrics. Fineness without maturity is of small value, he added.

"Staple length is a must," he said. "It is quite noticeable as we approach the ultimate in spinning value that we achieve it only with extra-long staple. If there is one fiber characteristic prized by the average overseer of a spinning room, it is long staple."

The speaker went on to condemn certain ginning practices. "Time after time," he said, "gin tests have proved that excessive heating and cleaning produce a very high lint-cotton grade. These factors also produce inferior processing and extremely weak yarn that costs too much to spin and weave."

With reference to price supports, Mr. Delaney told producers to "get price honestly competitive—and cotton will take over the textile market in a way never dreamed of before."

STORAGE HURTS QUALITY

The audience was rather startled when C. Curtis Cable Jr., of the Agricultural Marketing Service, Tucson, Ariz., said the decline in values of cotton after a year in storage ranges from less than $1 per bale to a high of $5.35 per bale. His figures are based on tests conducted by the U. S. Department of Agriculture.

A thousand bales from several areas are being sampled during the study (still being conducted) to determine: (1) changes in grade, staple, color, and other quality factors of baled cotton during commercial storage; and (2) the extent to which original cut samples stored under the same conditions as bales reflect changes in quality of stored bales.

The two-year study will end in the fall of 1961. Quality changes in both stored bales and stored samples have been checked at the end of 3, 6, and 12 months. An analysis will be made at the end of two years.

The 1,000 bales include 20 separate lots of 50 bales each. They were selected at the time they were ginned in 1959. Grade and staple classification of each sample was translated into dollar value based on the 1959 Choice A purchase price at average location.

Mr. Cable's conclusions:

"There is no evidence that either set of samples would consistently produce a higher or lower value than the other set. For about half the lots, the set of samples that produced the highest average value at the end of 6 months of storage produced the lowest average value at the end of 12 months.

"There is no concrete evidence that differences in value between the stored and freshly cut samples are due to differences in bale density, storage location, or area of growth," Mr. Cable said.

IDENTIFYING QUALITY

"The textile industry will pay for cotton quality when it can be accurately identified. And people with large investments in cotton production and ginning facilities are increasingly quality-conscious today," said A. M. Pendleton, USDA, Dallas.

"Cotton producers and ginners also are more moisture-conscious now than ever before because they realize that on the farm and in the gin they cannot measure quality exactly," he said. "But they can measure moisture reasonably well."

Farmers and ginners (where possible), he said, are trying to:

1. Pick cotton with no more than 8% lint moisture in the field, and gin it with no less than 5% at the gin stand.
2. Gin the dampest and trashiest cotton as soon as possible to avoid deterioration in storage.
3. Group cottons of like quality to minimize their adjustments at the gin.

QUALITY ON THE FARM

"Among cotton farmers there is an increased awareness of the need to define just what makes up cotton quality and for machines to measure such qualities quickly and economically." That's what farmer R. S. Barnett Jr., president of Elms Planting Corp., Altheimer, Ark., told the three-day seminar.

"As we move closer and closer to this goal, we can and we will produce the quality cotton that the trade is demanding," he stated "provided we can do so without sacrificing dollars."

FASTER TESTING AHEAD

Automated testing—Automation of cotton fiber testing with minimum research is now feasible, according to Hugh G. Neil, president, Special Instruments Laboratory, Inc., Knoxille, Tenn. He believes a conveyor-belt system could be arranged to draw the classer's sample along an optical scanner to determine color and trash. The sample would then be drawn across a flat-bed sampler, combed, and inserted into an automated device. This machine would deliver information to either a punched tape or a punched card.

"This punched card or tape would become an accurate record of color, trash, length, length uniformity, fineness, strength, and elongation—all at a rate of 500 to 1,000 samples per hour," Mr. Neil said. If the cotton industry indicates that this system is needed, he believes that tools are now available to do the job.

Spinning tests—The USDA spinning laboratory at the University of Tennessee (Knoxville), according to Director Philip Ewald, has developed spinning tests that require progressively smaller samples. The newest test takes only ⅛ pound of cotton per sample, compared with older tests that required one pound. Man-hours per sample tested are cut by more than 50%.

Pointing out that the present test requires about two man-hours per sample, Mr. Ewald said that it gives an excellent evaluation of yarn strength and general running quality on a routine basis.

Neppiness and yarn appearance, while not handled routinely, are readily checked.

Fiber length research—Fiber evaluation studies to determine if there is some length group or combination other than half-inch and shorter fibers that influence spinning performance indicate that:

1. There is a basic difference among cottons in length distribution, even though their staple lengths are the same.
2. While cottons respond to ginning treatments in a similar manner, the critical point where spinning is concerned may be reached with one cotton and not with the other under given ginning conditions.
3. Drafting properties of two cottons may be influenced more by longer fibers than by increased amounts of fibers shorter than one-half inch.

These conclusions were reported by Edward H. Shanklin of the USDA's Agricultural Marketing Service. He described an investigation made at the Clemson (S. C.) research station in which two cottons with a staple length of $1\frac{1}{16}$ inch were tested.

Measuring fiber properties—"The properties of cotton fibers are not new. But what is new—and what is of considerable industrial importance—is that properties are now being measured. More research is needed on geometric and mechanical properties."

This advice came from Dr. Ludwig Rebenfeld, associate director of the Textile Research Institute, Princeton, N. J. He said that four mechanical properties of cotton fiber are extremely important in spinning performance and end-product quality: (1) tenacity at break, (2) extension at break, (3) stiffness, and (4) resilience in conjunction with geometric properties.

More to measure—Increased demands by mills require the measurement of at least one additional parameter of fiber-length distribution A new concept termed "percent effective weight" has been introduced as an analytical tool. This theory indicates that ⅜ inch is the critical length for yarn strength.

In a nutshell, this is what John D. Tallant, of New Orleans, told the group about recent SRRL investigations.

Rapid measurement of short-fiber content is difficult, he said, and effort toward fast, accurate measurements should be intensified. It is possible that an interim method, such as measuring "effective strength index" (with short fibers left in), could be of immediate value. Another procedure for measuring length-distribution characteristics, for which no experimental work has been done, might employ an optical principle that requires no specimen preparation.

The major proportion of time consumed in present tests involves loading the jaws and shearing the outside fibers. Efforts at automation should concentrate here.

TEXTILE WORLD . . . Pointers for Supervisors

How to Win While Losing

Your drive to win is a strong—and necessary—virtue in today's competitive business world. But sometimes you can win while losing. Here's some help in recognizing those situations.

"SOMETIMES, Joe, you gain more by losing than by winning." That comment was overheard in a South Carolina mill. The speaker was an inspector who doubled in brass as "personnel manager," and he was talking to a spinning foreman. This was his reasoning: "Joe's been having a running argument with his wife. It's got him so upset that I think he'd be better off if he gave in and let her win the argument."

WHY WE HATE TO LOSE

In our day, our civilization, much emphasis is put on winning. From earliest childhood we are urged to "beat" the other kids at school, with competition a major teaching and motivating method. An illustration: The coach who stimulates his team with the exhortation: "I don't want good losers. I want successful winners."

In every event from the first-grade spelling bee to the contest between company vice presidents for the vacant top job, this is the spirit we're taught is the only one to be desired. To win is good. To lose is bad.

Pride has become mixed up in it, too. And we're ashamed when we're on the losing end. Even status has become involved. We tend to get stiff-necked and to pout a little when the other fellow walks off with the prize. Security has come to play a part, leaving us at least a tiny bit afraid each time we don't come out ahead. But here are some instances when losing had some definite advantages:

WHEN YOU'RE WRONG

A. L. Cameron, called "King Cameron" by all his subordinates (not to his face but on every other occasion), was owner of a little firm in the Middle West. He started out with a one-man shop 20 years earlier, and had it grow to 212 employees. Because he did it all by himself, Cameron believed devoutly that he knew all the answers.

But times change. Tax laws, government regulations, all the other complexities so familiar to modern supervisors, call for new answers. But King Cameron stuck to his guns, and kept on winning all arguments. But he lost his firm.

Moral: You can gain more by losing an argument than by winning an argument *when you're wrong*. Many a manager has cost his company plenty by insisting on exercising his prerogative as boss, and having the final say.

LEARNING BY ERROR

Fred Bains, as fine a supervisor as you'll run across in the textile business, never forgets that one important part of his job is development of the people who report to him. So when Derek Anderson clung to an argument about how a new machine should be set up, Fred weighed the alternatives.

He knew how the machine should be set up. He could pull rank and simply tell Anderson to do it his way. On the other hand, he could let Anderson go ahead and try it his way. It would be a lot more convincing to Anderson. And, since there was no rush, Anderson might learn a lesson from the experience. He made the latter choice.

Two days later Anderson called for help. He welcomed his boss's corrections and had a lot more respect for his know-how from then on. Moral: Letting a man "win"

By S. G. WILLIAMS
Management Consultant
New York City

an insistent argument and consequently make a mistake can be a valuable training device. One corporation chief says an executive almost never has the self-confidence needed for important positions until he has pulled a blooper, learned from his error, and discovered it didn't cost him his job to be wrong.

WHEN IT'S CHEAPER

There's an old and highly entertaining radio skit about a gentle fellow who was erroneously arrested for a minor misdemeanor. He was about to pass across the $2 fine when his lawyer showed up and exclaimed: "No, sir. They can't do this to you."

As trouble mounted and costs leaped, the poor victim kept pleading, "Pay the $2." But the lawyer was a "winner."

He won the case, too—eventually. And all it cost the innocent accused was his life savings and a whale of a lot of exasperation.

Moral: Losing can sometimes be a good deal cheaper and a good deal more sensible. Did you ever know an otherwise bright fellow who had an idea for an invention and kept pouring money into it long after it had proved unworkable—rather than admit he was wrong?

OUTSMARTING A SUPERIOR

Len Swayne was not a man to take defeat easily. He'd prepared a report, at the boss's request, on a proposal for a change in selling price. It was to have been presented to the executive committee. But Len's boss read it and rejected it, fully outlining to Len all his reasons for turning it down. And he reported to the committee that he and Len had several differences of opinion on the data so the report could not be presented.

Len was hopping mad. He dug out more evidence, established his facts with double firmness and, on his own, made the report to the executive committee. He proved he was right—and the boss was wrong.

But did he win? Len never got along very well after that, not with his boss or with the committee members. He left the firm within a few months. Double Moral: (1) When proving you are right hurts someone else, it isn't always worth it, especially if that someone else is your superior in the company; and (2) vindictive justification of your position is more likely to backfire than to propel.

WHEN OTHERS ARE RIGHT

A fascinating feature about democratic processes is that they give the majority the right to be wrong.

Frank Worley had considerable persuasive power and he exercised all of it in trying to get the other supervisors to agree with him on where they should hold the annual Foremen's Club picnic. Frank liked a waterfall area several miles south of town. Most of the others preferred the other direction and a roadside park that was near a golf course. They wound up voting, and naturally, Frank lost.

What happened? Frank packed up his family and went out to the waterfall. It rained. His son fell into the stream, soaking his clothes and putting a gash in his lip. Mama and young Sue Ann complained throughout the day about the mosquitoes. And the Foremen's Club talked for weeks about their good golf on the wonderful course, the impromptu entertainment the wives and children cooked up, and the delightful potluck lunch that had turned out to be so very special.

Moral: Democratic processes also give the majority the right to be right. So one of the best places in the world to lose is where you're protected by the collective intelligence and knowledge of a democratic majority.

MANY GOOD LOSERS

One of the best remembered and most highly respected generals in our history was a loser. No one would say he lost the war, but he was certainly on the losing side. That was a gentleman named Robert E. Lee. And perhaps the clearest, most influential mind in recorded times belonged to a man who also lost, and carried out his own executive order—a mind alive today in the thinking processes of every single one of us. An Athenian gentleman named Socrates.

It isn't that you lose, but how you lose that really matters. Many of us—Democrats and Republicans alike—gained new and increased respect for Richard M. Nixon because of his behavior in defeat after the recent election. People with character take defeat standing up. They are not defeated by defeat.

A WORD OF CAUTION

It looks like that South Carolina mill inspector was right: Sometimes you do gain more by losing than by winning. But let's keep in mind a few points in rebuttal:

• **A supervisor has to win, too.** If you are not right more often than you're wrong, if you don't come up with a "victory" frequently—as well as "defeat" now and again, you are going to have a tough time carrying the responsibility and authority that go with a supervisory post. You will win no popularity contest, or promotion, just by being a good and constant loser.

• **The reason you are a supervisor is that you have something,** some quality or qualities that raise you above the crowd. Where others jumped to conclusions, you found out the facts before you made your decisions. Where others were frightened or numbed by problems, you accepted the challenge the problems presented with spirit and enthusiasm. These and other qualities of leadership you had and have now. Losing "sometimes" can't take these qualities away from you—as long as you keep working at them.

• **Nothing in this Pointers for Supervisors suggests you shouldn't keep trying to win** just as hard as you have before. What is suggested is that its normal, natural, and relatively painless to be defeated on occasion, and that, sometimes you end up gaining more by losing that you would have gained by winning.

Coming: Faster Weaving . . .

. . . and a new kind of executive in the mill. These two trends stand out above all others revealed at the spring meeting of the Alabama TOE.

TWO POINTS sift through all the hustle, bustle, and speeches at the spring meeting of the Alabama Textile Operating Executives (TOE) at Auburn University.

• **Higher-speed weaving** is on the horizon.

• **A new kind of textile executive,** with a new outlook, is moving up through the ranks today.

Men turned out from 19 weaving mills for this year's meeting. Fully 25% of the participating audience was made up of men only 30 years old, or younger. In fact, one of the two discussion leaders was a young man himself. In past years, only a sprinkling of young men attended these meetings.

In addition, there appeared to be new attentiveness throughout the audience. When the chairman and the discussion leaders talked, there wasn't a whisper of side-line conversation to distract attention.

These two impressions indicate that there's a new type of textile executive in the making—a new man with a new outlook—a man dedicated to learning more about his job and his industry.

Although no new problems or machines were discussed, there was a deep probing into textile problems. Results: more dollars-and-cents savings, more figures on efficiency gains.

BETTER SIZE MAKING

Take high-temperature converters (TEXTILE WORLD, Nov. '59, p. 157) and other size cookers as an example of the kind of information these discussions produced. With these new units, mill results are: 0.5% more weaving production, 25% larger weaver jobloads, $9,000 a year saving in slasher labor, complete elimination of seconds from hard size, elimination of variation in size viscosity, faster size cooking, and completely automatic cooking.

MORE ROLL KNOW-HOW

Mills have developed newer and better methods of using rubber-covered slasher squeeze rolls. In place of the common "I don't know" or "no experience" answers, mills now can (and will) tell you exactly how they run these rolls—pounds of pressure (dead weight and pneumatic) on each end of squeeze rolls, diameter and length of rolls, thickness of rubber on rolls, buffing cycle, and percent of size pickup.

Mills have now learned to buff their own rolls. Exception: One mill sends out rolls 78 inches long.

Over-all pressure on rolls is pretty closely standardized. Pressure on 60-in. rolls begins at 475 pounds on small rolls and ranges upward to 750 on large rolls. Average is 550 pounds.

Rolls are covered with 1 to 1¼ inches of rubber. Buffing begins when rolls wear down to ⅜ to ½ inch in over-all thickness. Taking Durometer readings is another way to determine buffing time: Mills buff at 50 to 65. Average buffing interval is six months. Best buffing schedule: Christmas and July 4.

Believe it or not, six mills still have obsolete slashers. And payoff on new slashers is under two years!

FASTER WEAVING

Older problems bobbed up in weaving, too. Most interesting development: the high-loom speed run by a few mills. The highest are:

Mill A—40-in. X-2 looms running at 194 ppm. Loomfixers have 80 looms. Supply cost is $2.86 per 120-hr. week.

Mill B—40-in. X-2 looms running at 192 ppm. Loomfixers have 90 looms. Supply cost is $2.80 per 120-hr. week.

Now look at two mills with lowest speed:

Mill C—40-in. X-models running at 172 ppm. Loomfixers have 100 looms. Supply cost is $2.14.

Mill D—40-in. X-models running at 180 ppm. There are 82 looms per section. Supply cost is $2.63.

CONTROLLING FILLING

One thing mills are not sure about—at least there's great disagreement—is the proper way to control filling in shuttles. Three distinct methods with many variations are being used.

Nylon loops have a definite edge now. Even so, though many mills swear by them, others weaving the same fabrics on the same looms argue against using them. There's good opportunity here for a college student or some industrious man to render a great service to the industry and pick up some personal credit by finding the facts on nylon loops.

CUTTING SHUTTLE COSTS

Most mills do agree that shuttle costs are reduced by replacement of dogwood shuttles with molded or laminated shuttles. Fourteen mills have changed to these shuttles, and 12 of them have dollars-and-cents figures to back up their change. Two mills are getting 16,393 and 16,227 loom hours on X-2 looms.

With X-2 looms used as a yardstick of performance, here are average shuttle costs per 1,000 loom hours in three mills: (1) molded shuttles, $0.90; dogwood, $1.07; (2) molded, $1.68; dogwood, $2.50; and (3) molded $1.50; dogwood $2.50.

Another mill has analyzed its results with molded shuttles:

Advantages: No splinters; longer life; no problems from holes drilled for nylon loops; no shuttle cutting by reeds; quicker installation; and better boxing because molded shuttles are heavier.

Disadvantages: 51% more pickers and 74% more checkstraps are needed.

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Let's talk sense about stainless steel valves.

The material, the metal itself, is pretty much a cut-and-dried matter of *specifications* — selecting the right metal for a particular application. After all, the same alloys are available to *all* valve manufacturers!

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These are the really meaningful, the sense-making factors which impel more and more buyers to specify "BY Jenkins," along with the specification for a particular alloy.

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Manpower Management

By PAUL A. KING, Labor Relations Counsel, New York City

How Good Are Handicapped Workers? How do you handle them? Listen to an expert—the National Association of Manufacturers. It has had 18 years of experience with the subject. NAM's 20-p. booklet describes a step-by-step procedure for recruiting them, introducing them to the job, and so on. Cost: 50¢. You can get it from Industrial Relations Division of NAM, 2 East 48th Street, New York 17.

Pay Differential for Reservists: Odds are your company promised to pay reservists on summer encampment or cruises the difference between their military pay and what they would have earned if they had worked for you. Odds are also that you'd be awfully shocked to learn that under such a policy you have to pay them the overtime that their replacement earned. But this is precisely how one arbitrator rules. Better check your policy statement.

Pay Differential for Jurists: Here's another differential issue. This time employees on jury duty were to be paid the difference between their jury pay and their regular pay. But the company made out better this time. The arbitrator stated that the differential need not be paid to an employee whose jury duty ended six hours before his regular 11 p.m. shift was to begin.

Sell and Resell Your Benefit Plans: Thousands of dollars are invested in company pension, profit-sharing and insurance plans. Too many workers take them for granted. But not at Abney Mills. Each year, employees receive an attractive certificate of participation reminding them how much they have in the company's profit-sharing plan and how the amount has been growing. An occasional piece about the plan in the employee newspaper is another step taken to get the idea across. Another good idea is to give employees an annual recap of their insurance, major medical, and other benefits when they get their pension or profit-sharing statements. Theory: These documents are taken home for the worker's wife to see. She acts as a stabilizing force.

When the Union Knocks, Watch Your Language: The farsighted president of California Lingerie, Inc., knowing how fussy the National Labor Relations Board can be about what employers say to a union during an organizing campaign, made a tape recording of his speech. What better proof could there be? But he lost out anyhow. Not admissible, said the NLRB. There's always the chance that it may have been altered, the board argued.

Successful Union Handling: Back in 1946, 60% of General Electric's employees were unionized. By last year, only 30% were covered by a union. Partly responsible for this change in statistics, according to Robert Borth, Washington G-E representative, was a beefed-up communications program. For example, all employees received newsletters during contract negotiations telling them what was being offered, what was happening. Management members received special labor relations letters. Newspapers carried ads expressing the company's point of view.

No Holiday Pay for 5-Hour Worker: Although the arbitrator kicked out this case on procedural grounds—the union had failed to process the grievance properly—he made it clear that he was siding with the Downs Carpet Company interpretation of the contract holiday clause. For an employee to be entitled to holiday pay, the clause called for the employee to work the day before and the day after the holiday. But only 5 hours of work on the day preceding Thanksgiving was not enough to qualify this employee, despite her having to head homeward because of illness in her family.

. . . *Turn the page*

Manpower Management

. . . *Begins on page 57*

Punching the Other Guy's Card: In almost every plant it's reason for discharge. And so it was at Cranston (N. C.) Print Works, until a board of arbitration at Textile Workers Union of America's insistence modified the provision. Said, in effect, for a discharge to stick there must be a blameworthy motive and an intent to harm the company—such as to "steal" time. Punching another employee's time card to help him avoid a long wait in line would not warrant discharge. A suspension might be a more likely penalty.

Punching the Other Guy: Discharge of a hot-tempered employee who would punch the other guy at the drop of the first nasty insinuation is also a typical plant rule. But some soft-hearted employers may not want to enforce it. And often when an employer does enforce it a soft-hearted arbitrator overrules him. But here's reason for the hard-boiled approach: A California Appeals Court ordered a company to pony up $20,000 in damages to an employee who had been injured in a fight with a fellow employee. Reasoned the court: The company knew of the employee's hot-tempered nature. It permitted "unsafe" working conditions, and thus was negligent in keeping him around.

Layoff and Sympathy: A union contract is sacred, said arbitrator John Perry Horlacher. So sacred that there was no place for sympathy for a disabled employee. The employee in the case crushed his hand in a brake press while working unscheduled overtime. He lost the hand, but with a prosthetic device he could still do the work. When 41 employees were to be laid off, his seniority included him in that group. But to give him a physical, psychological, and emotional lift, the company wanted to keep him. No, said the union. No, agreed the arbitrator.

An Ash-heap for Your Workers? Do you help them with their retirement problems? If you don't, the union will move in. For example, District 65 of the Retail, Wholesale & Department Store Union held an 8-wk. course on planning retirement for members about to retire. For counselling-minded employers, who can't afford an expensive program, there are movies to rent—$12.50 per showing. One, called "Preparation for the Later Years; Financial Planning," can be obtained from Dynamic Films, Inc., 405 Park Avenue, New York 22. Then there are periodicals. Quantities of "Fifty-Plus" can be secured from the company of the same name, located at 2017 Massachusetts Avenue, N.W., Washington 6. Another magazine, "Modern Maturity," is available from David Jeffreys, American Association of Retired Persons, Du Pont Circle Building, Washington 6.

Res Ipsa Loquitur: This fancy legal expression means that "the thing speaks for itself." And so will the value of time cards when you read these case summaries: A Massachusetts federal court takes at face value that an employee worked an average of 54 hours a week rather than the employer testimony that it was 27 hours. Time sheets had been used. An Iowa Court admitted oral evidence that more hours were worked than were recorded on time sheets. But an Arkansas court ruled in favor of the employer's "time cards" and denied validity to the employee's private records.

Getting to the Missus: The man in the family may think he's the chief executive but smart money will bet on his wife overruling him every time on the important matters. Capitalizing on the influence of the little women at home, National Cash Register gives the wives of suggestion winners a prize, too—silverware or household appliances. Calculated result: get her to get him to dream up and write in that suggestion.

Get It Straight From the Horse's Mouth: An employee recuperating from an injury was fired because his nephew called to say his uncle wasn't coming back to work. Turned out that the employee had already told a company officer that he would be back. Reinstate him, ordered an arbitrator.

TEXTILE WORLD
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CHEMICAL TREATMENT AND FINISHING

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Tips on Discharge Printing—Here's some important advice on why and when to use discharge printing. It's complete with step-by-step details on how to use the system and where it works best 76

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News of the Month in . . .

Textile Chemicals

By ROBERT W. PINAULT, Associate Editor, TEXTILE WORLD

Colloidal Aluminum Oxide: It's New And It Has Textile Potential

Colloidal aluminum oxide in which particles are in fibrillar form is a new product of E. I. du Pont de Nemours & Co., Inc. that has many interesting features.

Called Baymal, the material is wettable in water or solvents, is film-forming and can be used to prepare water and oil emulsions. Applied to glass or asbestos fibers, Baymal forms films at junction points between the fibers. This binds them.

Thixotropic gels are readily formed with the product, indicating its usefulness as a thickener. The material carries a potential charge so it fixes readily to negatively charged material such as glass, Orlon, Dacron and paper.

Applied to textiles, Baymal imparts antistatic qualities and reduces soiling and pilling. Fiber-to-fiber friction is increased, and this retards stretching of acrylic fiber knitted goods.

Baymal is available in experimental quantities.

Molasses Is Base For New Chelating Agent

Union Starch & Refining Co., Inc., Columbus, Ind., has patented a molasses or other sucrose-containing derivative that has excellent chelating properties.

The fructose or dextrose components of molasses are treated with sodium cyanide to form cyanhydrines, which are then hydrolyzed to form seven carbon polyhydroxycarboxylic acids.

The latter are good sequestrants for calcium, magnesium, iron and other metals in alkaline solutions. The products are useful additives to kier boiling or other caustic-activated scouring liquors. You can sequester up to 300 ppm. of calcium and magnesium if there is 3% caustic soda in the solution.

Combine Water Repellents For Better Washfastness

Now you can take advantage of the best features of silicone water repellents and those based on wax and zirconium salts or condensation products of a methylolamine with a fatty acid and an alkanol amine.

Normally, silicone water repellents are incompatible with other types. But Chemische Pfersee in Germany now has an aqueous emulsion that produces washfastness.

First, the silicone emulsion is prepared so as to contain 50% of a mixture of methyl- and methylhydrogen siloxanes, 23% of a mixture of toluene and perchloroethylene, and 3% of polyvinyl alcohol as a dispersing agent. The second aqueous emulsion carries a condensation product of stearic acid, melamine, paraformaldehyde, and triethanolamine plus paraffin wax.

This mixture is dispersed in 33% of its own weight of 60% acetic acid and then diluted with water.

The water repellent solution is made by mixing 100 grams per liter (gpl.) of the silicone emulsion, 10 gpl. of zirconium oxychloride, 10 gpl. of sodium acetate crystals, and 100 gpl. of the condensate-paraffin wax mixture. Cloth is treated in this solution to give an 80% pickup, dried, cured 5 minutes at 150 C.

Water repellency is excellent and remains substantially unchanged after repeated washings with soap and soda at 80 C. or after cleaning with drycleaning solvents.

Metallic Salts Improve Cotton Fabric Properties

Researchers at Texas Women's University screened 74 compounds, oxides, and salts of various metals to come up with interesting results. Cobaltous metaborate applied to cotton fabrics provides good resistance to mildew, rotting, weather effects, actinic exposure, and atmospheric contaminants. Added bonus is good-to-excellent water repellency in treated fabrics.

Cobaltous hydroxide provides good-to-moderate resistance to rot and mildew, and very good resistance to outdoor weathering, actinic degradation and atmospheric contaminants of various kinds.

A full report on research results is available. Request ARS-72-15 from Southern Utilization Research & Development Div.

How to Improve Strength Of Regenerated Fibers

Carboxymethylcellulose (CMC) added to casein solutions improves the resistance to boiling water of fibers formed from this mixture.

What happens is that CMC forms a solid solution with the casein under alkaline conditions. When the extruded mix is coagulated in sulfuric acid and hardened with formaldehyde and aluminum sulfate, you get the following improvement in strength after boiling for 5 hours:

Regular fiber
Dry strength 0.72 grm. per den.
Wet strength 0.26 grm. per den.
Fiber plus CMC
Dry strength 1.22 grm. per den.
Wet strength 0.66 grm. per den.

The discovery is covered by British Patent 867,935 to Textile & Chemical Research Ltd., Guernsey, Channel Islands.

More Nonresinous Finishes Hit The Competitive CRF Market

Crease-resistant finishes for rayon and cottons based mainly on thermosetting resins are getting tough competition from the newer nonresinous types of finishes.

Last month Sanford P. Young, president of Young Chemists Associated, Greensboro, N. C., told members of the Association of the Shirt, Pajama, & Sportswear Manufacturers about recent developments in crease-resistant finishes. "In recent months," said Young, "no less than four new finishes of the nonresinous type have been announced."

Prestwick, Courtaulds (Alabama) Inc.'s new product, goes back to the cheapest and one of the best crosslinkers—formaldehyde. How Courtaulds solved the problem of excessive tensile strength loss that accompanies use of formaldehyde is not public knowledge. But a buffered catalyst undoubtedly has a good deal to do with it. Prestwick gives good crease resistance, wet or dry, plus good dimensional stability.

Similarly Bancare, Joseph Bancroft & Sons' entry, is probably aldehyde-based. But again definite composition is not available. Advantages of the aldehyde-type finishes are economy, good durability, and no chlorine retention. Research has cut down tensile-strength losses associated with these finishes and doubtless will provide even better finishes in the future.

Divinyl-sulfone derivatives are the latest entry. (Dr. Giuliana Tesoro, head of organic research for J. P. Stevens Co., Inc. gave a preliminary report on this material at last year's Chemical Finishing Conference.) In the past two months Ganalok-A-14, a product of General Aniline & Film Corp., has been put on the market. This product is described as nonresinous and possibly is of the divinyl sulfone type.

Monsanto Chemical Inc.'s Retane is another new crosslinker that is thought to be based on sulfone chemistry.

Divinyl-sulfone derivatives have many good points as crosslinkers. One bad feature: they make fabrics yellow on application. Yellowing can be removed by an afterbleach, but this means extra expense.

Young concluded with the observation that there are several excellent wash-and-wear finishes on the market, but that it is impossible for the finisher to do a first-class job at today's prices for his services.

How You Can Get Good Wool-Cotton Unions

You can avoid some of the troubles in getting good wool-cotton unions with a new method, developed by Ciba Ltd., of Basle, Switzerland.

Normally, selected direct colors and acid dyes are used to get unions in such fiber mixtures. Dyeing is done at moderate temperatures in a slightly alkaline bath, which is apt to encourage wool staining with the direct color. There is also some danger of degrading the wool under alkaline dyeing conditions.

With the Ciba process, you can use the metal-complex azo dyes for the wool, which generally have better fastness.

The bath is made up with 4,000 parts water, 40 parts Glauger's salt, 6 parts acetic acid (40%), and 3 parts of a 30% mixture of the wool-reserving agent. The latter is a condensation product of naphthaline sulfonic acid, formaldehyde, and hexamethylene tetramine.

Enter the goods at 50 C., work for 15 minutes, and then add the premetallized and direct dyes. Bring the bath up to boiling in 30 minutes and maintain for 1 hour.

The bath is at first acidic but gradually changes to pH 7 as ammonia is released by decomposition of the hexamethylene tetramine. Net result is that each fiber is dyed with its appropriate dye with little or no cross staining.

Now—Prepared Carriers Go Directly to Dyebath

You can now prepare dye carriers of the phenylphenol type that can be added directly to the dyebath. There is no need to dissolve the phenylphenol in caustic and then acidify the solution to get a usable dispersion.

General Aniline & Film Corp. does it this way: The carrier is mixed with its own weight of an anionic-dispersing agent and a small amount of water. The mix is put in a colloid mill and steam is blown in for the first few minutes to remove some of the water. The mixture is milled until it is nearly dry, and then it is completely dried in an oven at 55 C. Finally the powder is reduced to extremely small particle size in a hammer mill.

Sonic Defoamers Kill Unwanted Suds

If you can stand the noise, the latest in defoaming devices may be the answer to foaming problems in chemical treatment baths.

Sound is generated by forcing air into a chamber, which resonates. The sound waves so sent up are reflected down onto the foam, which breaks up as a result of variation in pressures in the sound cycle.

Two sound generators that achieve results are about ready for the market. Teknica, Inc., Hartford, Conn., makes one. The other is a development of General Precision, Inc., Kearfott Div., Little Falls, N. J.

The sound generators operate well with 15 to 27 psi. air pressure. They may be installed 6 to 10 inches above the surface to be defoamed, on 2-ft. centers. Difficult foams may require a sound generator every 6 inches. If you can enclose the liquid carrier, you can materially reduce the noise level of 150 decibels.

A more complete report is published in *Chemical Week*, McGraw-Hill publication, May 6, 1961.

Premetallized Dyes Improve Lightfastness

The good washfastness of reactive dyes can now be complemented with improved lightfastness if the dye contains a chromium or cobalt molecule.

Dye chemists find that you can attach one or more dichloro triazine groups to ordinary premetallized dyes. Typical dyes are chromium or cobalt complexes of azo dyes that contain ortho-orthó dihydroxy, or ortho-carboxy-orthó-hydroxy-azo groups and solubilizing groups such as sulfonic acid. These dyes react readily with acid-cellulosic fiber and can be dyed or printed on the fabric.

You need a stronger alkali than is necessary for unmetallized dyes. Both trisodium phosphate and caustic soda are suitable. You can add these to the dye liquor or apply in a separate operation. Either way, the goods are then steamed at 100 C. for 1 minute. The usual soaping and rinsing follow.

Two New Binding Systems Give Good Pigment Dyeing Results

You can get good results in pigment dyeing with either of the methods described in British Patent 842,728 to Ciba Ltd.

In one method, the essential conditions are that the pigment must be dispersed in the dye liquor with the aid of a cation-active dispersing agent. The dispersion also carries a pigment-binder based on an additional polymer. Suitable polymers are derived from monomers such as vinyl acetate, vinyl butyrate, and derivatives of styrene, acrylic acid, or methacrylic acid.

Recommended polymers are those made from copolymerizing a 66/12/30 mixture of n-butyl acrylate, styrene, and vinyl isobutyl ether, or a 70/30 mixture of asymmetrical dichloroethylene and butyl acrylate.

In the other method, thermosetting resins of the type used to produce wash-wear finishes are used.

A typical padding formula is 1% copper phthalocyanine blue paste; 0.5% of a 70% emulsion of methylol melamine-alkyl-ether modified with soya fatty acid (the cationic surfactant is the emulsifying agent); 0.4% ammonium nitrate.

This formula requires that the goods be cured after drying for 5 minutes at 150 C.

If you want to use an additional polymer instead of thermosetting resins, try this: 4% of a dispersion made from 150 parts isobutyl acrylate, 40 parts of arylonitrile, and 10 parts of a quaternary compound made by reacting chloroacetamide with acrylic acid-(3-diethylaminopropyl-amide).

New Test Separates Acrylic Fibers With Color

A useful test for distinguishing between the acrylic fibers Courtelle (Courtaulds), Orlon 42 (Du Pont), and standard Acrilan (Chemstrand) has been devised of chemists of Courtaulds Ltd., Britain. Fibers are treated for 15 minutes at the boil in a liquor (ratio of liquor to fiber = 40 : 1) containing:

2% (weight of fiber) of Sevron Orange L (Du Pont).

2% of Lissamine Green SFS (Imperial Chemical Industries).

4½% of sulfuric acid.

1 gram per liter of the nonionic anti-precipitant Lubrol W (I.C.I.).

Under these conditions, the fibers become colored:

Orlon 42—Red.

Standard Acrilan—Green.

Courtelle—Pale orange.

Include small known samples of these fibers in the dyebath with the fiber being tested, particularly if the acrylic fiber under test is stripped of its color first.

Melamine Replacement Cuts Chlorine Retention

You can keep good water repellency and crease resistance of finishes based on methylated methylol melamine plus long-chain aliphatic monocarboxylic acid amides and at the same time cut chlorine retention.

British Industrial Plastics Ltd. fiinds that you can substitute 1 : 3-bis-hydroxymethyl-iminazolid-2-one for the melamine derivative and cut chlorine retention to a minimum. You can also use 1 : 3-bis-methoxymethyl-iminazolid-2-one.

The azolidone is used both alone and as a paste made as follows:

Dissolve 180 parts of 1 : 3-bis-hydroxymethyl-imidazolid-2-one in water. Add 282 parts of stearamide with vigorous agitation. Then add 69 parts of 37% formaldehyde solution and 12.4 parts of a petroleum sulfonate dissolved in 100 parts of water. Finally you add 3.8 parts of caustic potash and heat the mixture during 1 hour to 70 C., maintaining that temperature for an added 30 minutes. The paste thickens during this time, and after cooling you add 16.4 parts of a nonionic dispersing agent based on an ethylene-oxide derivative of paranonyl phenol.

Treating solution is based on:

4 parts 1 : 3-bis-hydroxymethyl-imidazolid-2-one.

5 parts of the resin paste described above.

0.45 parts zinc nitrate (catalyst).

90.55 parts water.

Cottons are padded in this solution to 100% pickup, dried at 85 C., cured 10 minutes at 160 C.

Did You Know . . .

. . . that there is a time factor in soaking acetate fabrics prior to dyeing? Acetate tricots are soaked open width in hot water to avoid crack marks in dyeing. If you can batch the goods and wait several hours before putting them in the beck, you'll cut down your chances of crack marks considerably. Theory:

Time effects a change in the structure of lateral bonds that is favorable to wet crease resistance.

■

. . . that you can sometimes improve depth of shade in acetate dyeing by using two or more dyes instead of one? The saturation value of one dye often is reached before the shade has built up. But if you use similar dyes, each will be absorbed independently and provide the necessary depth. This trick also helps to reduce crocking.

■

. . . that vat dyes are your best bet to cover over-bleached areas in cotton goods? Blue shades in particular are hard to dye evenly with direct dyes if oxycellulose is present. Vat dyes will usually cover very well.

What's New In Dyes and Chemicals

Water Repellent

SS4053 . . . is a silicone water repellent supplied in a nonflammable solvent. It's recommended for canvas, bags and bagging, tents, tarpaulins, and apparel. Silicone Products Dept., General Electric Co. **(Circle D-1 on Reader Service Card)**

Bonding Material

One-Package Adhesives . . . are offered especially for wet-laminating polyurethane foams to fabrics. The series is resistant to washing and drycleaning and requires no catalysts or other additives.

The adhesives may be applied by roller coating, spray, or rotogravure methods. Bond and hand qualities are unchanged after more than 10 washing and drycleaning cycles. The adhesives can be used with water-repellent fabrics. Custom Chemicals, Inc. **(Circle D-2 on Reader Service Card)**

Lubricant

Ecco Printlube . . . is useful in roller- or screen-printing processes to lubricate pigment whites, pigment colors, metallic bronze prints, acid, direct, vat, and azoic dyes.

It reduces foaming and produces a soft hand in pigment prints that are not soaped after printing. Crockfastness is not affected at recommended concentrations. Print colors do not dry out readily when this product is included in the paste. Eastern Color & Chemical Co. **(Circle D-3 on Reader Service Card)**

Crosslinking Resin

X-Link 2833 . . . is described as a crosslinking-resin latex and is suggested as a finishing material for textiles. It is a vinyl-acrylic copolymer capable of crosslinking without the addition of thermosetting resins. Films formed with it are resistant to water, solvents, and creeping. National Starch & Chemical Corp. **(Circle D-4 on Reader Service Card)**

Reagent

Caustic Potash . . . especially purified and designed for laboratory or industrial use is available in pellet or flake form. Sulfate impurities are less than 0.005%; iron and chlorides less than 0.001%. A & S Corporation. **(Circle D-5 on Reader Service Card)**

Water-Emulsion Binders

Polectron . . . is a generic term for a series of copolymers of vinyl pyrrolidone. They are emulsifiable in water and have good binding and film-forming qualities.

Polectron 130 is a vinylpyrrolidone-ethyl acetate copolymer emulsion. Polectron 430 is based on vinylpyrrolidone and styrene, as is Polectron 450. Each has 40% solids. Excellent dye receptivity and good emulsion stability are common to the copolymer series.

Suggested uses include binders for nonwoven fabrics, coatings, and rug backing. Antara Chemicals Div., General Aniline & Film Corp. **(Circle D-6 on Reader Service Card)**

Bacteriostat

Corobex . . . provides enduring protection from disease-carrying bacteria, molds, and mildew. Odors from perspiration and other causes are also inhibited. Product is applicable to a wide range of domestic and apparel fabrics as well as plastics and leather goods. It can also be used as an ingredient in floor waxes and cleaners. Corobex Div., Royce Chemical Co.
(Circle D-7 on Reader Service Card)

Fast-Dissolving Salt

Dendritic . . . is a type of sodium chloride processed to dissolve more rapidly than a salt of normal crystalline structure. Crystals are of star-like conformation rather than cubicle, and the salt has a low weight-bulk ratio. Morton Salt Co. **(Circle D-8 on Reader Service Card)**

PROCESSING THE SYNTHETICS ?

FIBREGARD

Reg. U.S. Pat. Off.

IS THE *ONLY* LUBRICANT THAT CAN GIVE YOU OUTSTANDING RESULTS!

FIBREGARD:

- increases the tensile strength of fibres
- eliminates static and ball-up or gumming during carding
- reduces tension because it provides adequate surface lubrication
- reduces breakage of treated yarns, increases loom efficiency and insures slick warps when used in warp sizing
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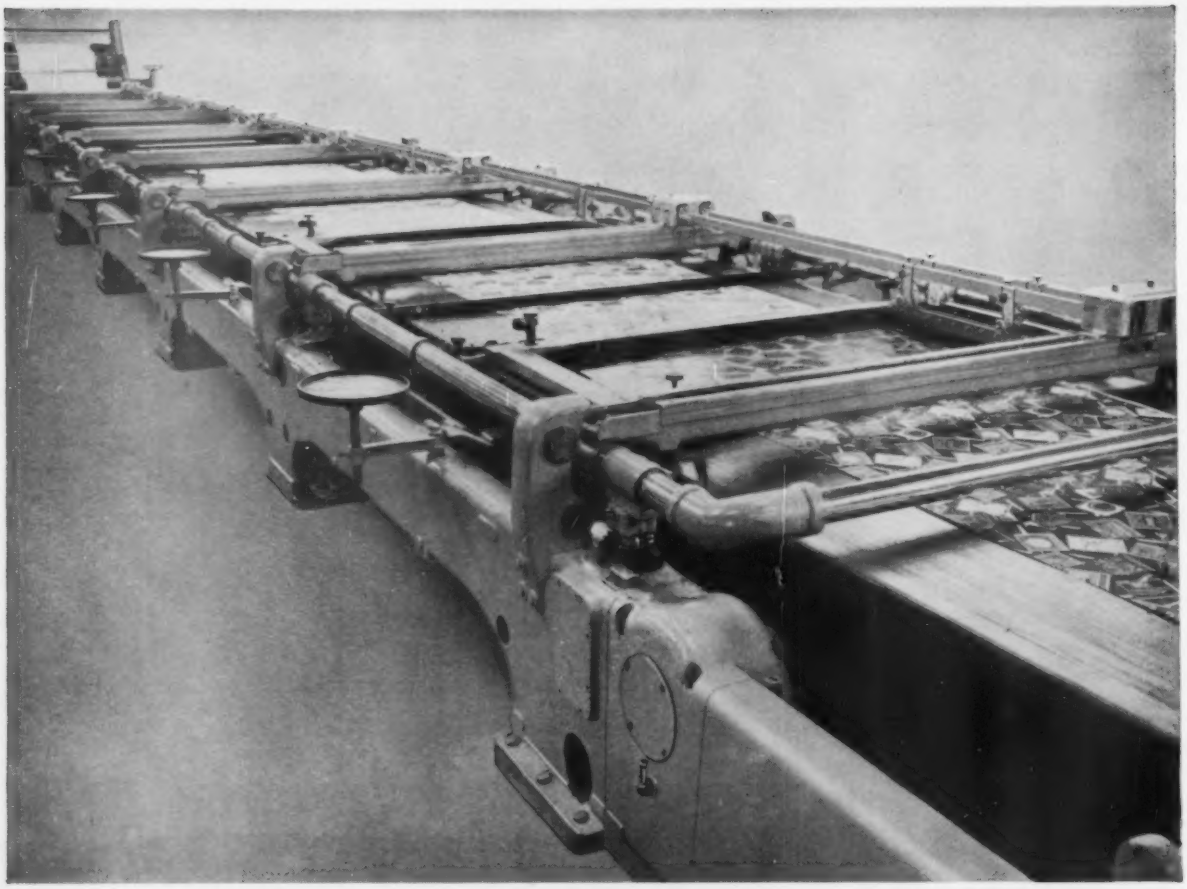
Muriatic Acid • Calcium Hypochlorite • Titanium Tetrachloride



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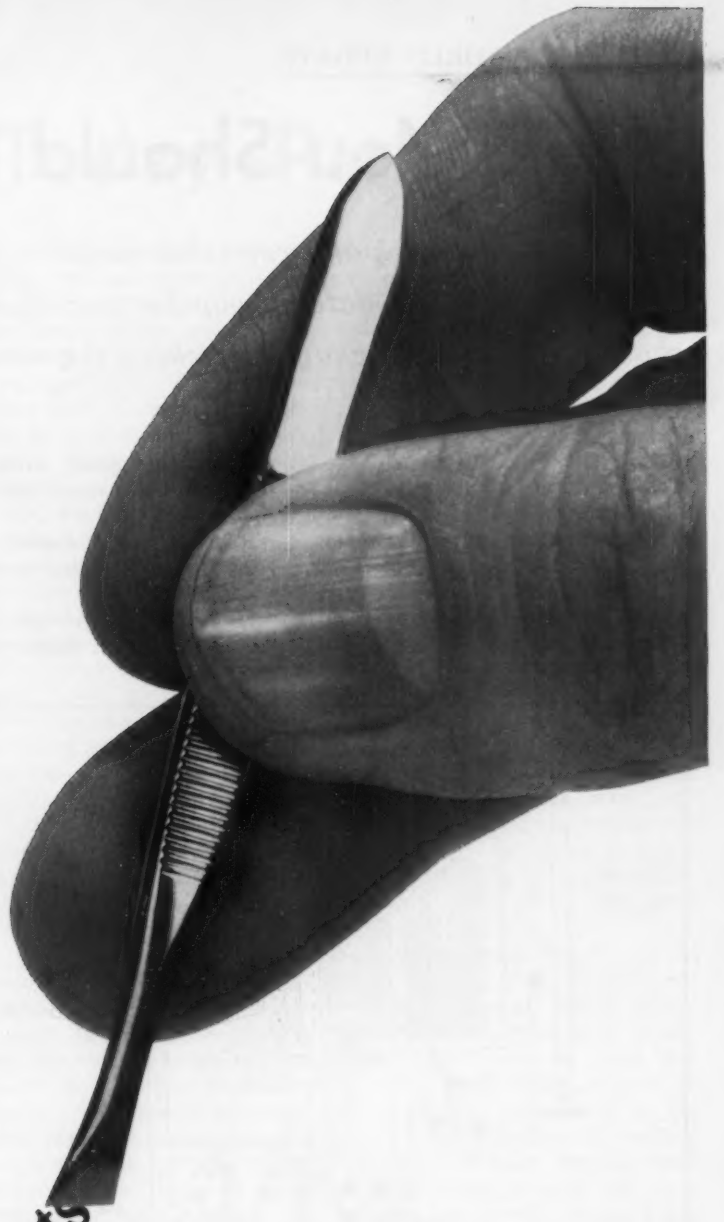

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CIRCLE 69 ON READER SERVICE CARD

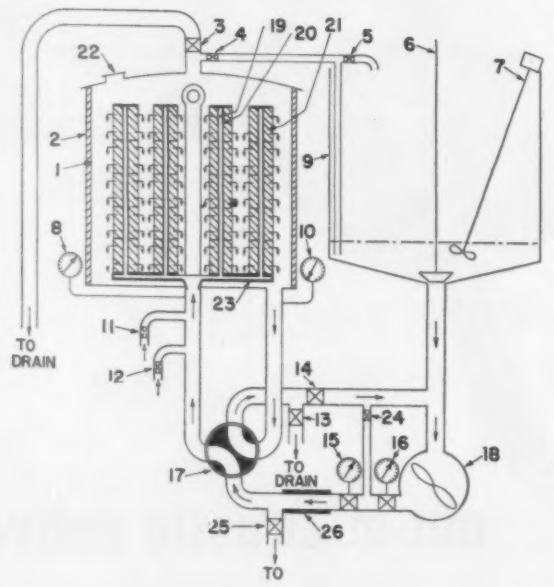
A TEXTILE WORLD UPDATE

What You Should Know About

This is Installment 4 of a refresher series on vat dyeing. It will help keep you up-to-date on popular package-dyeing systems, from choosing the right package to picking the most efficient drying system.

PACKAGE DYEING is one of the most popular and important methods of applying vat dyes to yarn today. It owes much of its popularity to the fact that it . . .

- Uses less labor, less steam, less water, and fewer chemicals than other methods.
- Means high-quality dyeing.
- Produces less waste than from skein-dyed yarn.
- Requires fewer winding steps in getting the yarn into warps or filling quills.
- Makes subsequent processing run better than with skein-dyeing.



Here's What You'll Find in a Typical Package-Dyeing Machine

1. Kier
2. Kier jacket
3. Overflow wash valve
4. Overflow pipe
5. Sampling faucet
6. Plug
7. 2-Speed-mixer
8. Inside pressure gage
9. Expansion tank
10. Outside pressure gage
11. Steam inlet
12. Compressed air inlet
13. Drain valve
14. Pump return shut-off valve
15. Flow meter
16. Pump pressure gage
17. Reversing valve
18. Pump
19. Spindle
20. Tube or Spring
21. Packages
22. Sampling port
23. Carrier
24. Bypass valve
25. Drain valve
26. Heat exchanger

JUST THE RIGHT PACKAGE

The success of any dyeing procedure depends in great part on the condition of the package (called package, cheese, or cake depending on shape or stage of manufacture) at the time of dyeing. You still must properly wind yarn before it is dyed. The higher rate of flow in modern machines may overcome bad winding to a certain extent, but it is no substitute for a properly wound package.

No single density, angle of wind, or package size can serve for all dyeing. Each dyehouse determines these factors for the yarn at hand, then sees that the winding is done to meet specifications.

If your package is too soft, the dye liquor will cause ballooning of the area next to the tube, with local overdyeing as a result. Soft package wound on springs may compress to the point where the top holes of the spindle are uncovered. In this situation, a lot of dye liquor is diverted through the path of least resistance instead of through the yarn. You can now get automatic followers that seal off free spindle holes by dropping in place as a column of packages shrinks. Hard packages are also a problem: They impede liquor flow.

Most companies find that a firm, but not hard package, is best. They check winding periodically and take out packages at random to check density and permeability.

You can wind packages according to scientifically determined

By the late O. W. CLARK
Dyes Department
American Cyanamid Co.
Bound Brook, N. J.

Vat Dyeing Today—Part 4

specifications, but most mills shy away from this procedure. The high skill and close supervision required for this type of operation, added to top-machine maintenance and detailed testing procedures, appear to be too much for most plants. Instead you can use high-flow rates, high-dyeing temperatures, and the pigment method of application and retardants to even out any normal variations in package density.

After winding the packages, round over the ends in a special machine. This operation will break up the slightly higher density produced by the reversal of the yarn at the end of its travel across the face of the package. Rounding off the ends decreases the density at this point, which counterbalances the slightly greater resistance to liquor flow caused by closing up the angle of wind.

You should extend yarn wound on perforated tubes well beyond the perforations in the tube. Otherwise the liquor will take a short cut through the end holes.

Yarn wound on springs is usually mounted on the spindles without separators. In this instance square-ended packages are preferred. The square ends butt together well under compression to form a more or less homogeneous cylinder. If this joint is faulty, leakage will occur and you'll get over-dyed ends. Use the Annicq spring with separators to maintain a small space between packages.

Finally, your package must leave the dyeing, extracting, and drying operations in good shape for subsequent rewinding.

There are several types of machines you can use in package dyeing. (The drawing on the facing page shows major features common to these machines.) They all have a kier in which the dyeing takes place. The packages or cheeses are wound on springs or perforated tubes mounted on hollow perforated spindles. The kier has a removable cover that can be sealed tightly. Most machines have a sampling port built right into the cover.

Dye liquor moves under pressure through the spindles, tubes, and packaged yarn. The direction of liquor flow is usually reversible to help get even dyeings. Auxiliary expansion tanks serve as vessels to make up dye and chemical solutions and also as revervoirs.

In today's modern machines, heat exchangers that are mounted outside the kier heat and cool the solutions. Older types carry closed coils in the bottom of the kier, through which steam or cold water may be pumped. Some machines have an overflow pipe of ample size through which plenty of soft fresh water can be flushed through the packages during rinsing cycles. Other machines simply use a drain valve to accomplish the same result.

The overflow pipe returns liquor circulating in the system through suitable valve gear to the expansion tank.

Various types of pumps circulate the liquor. If you want to reverse the liquor, in most cases you can reverse the valves. Sometimes you may use two pumps alternately. Adequate liquor flow is important. A good gage of adequate flow is a liquor-flow system that you can depend on to move 7 gpm. of liquor against a 70-ft. head.

You should apply vat dyes at a flow rate that never drops below 3 gpm. for each pound of yarn being dyed. Over 6 gpm. offers hardly any advantage. Remember that flow rate in a system does not necessarily mean flow through the yarn itself. Leakage between packages and at sealing nuts and spindle seats may cut package flow seriously. Package density often varies too; so there may be variations in dyeing between loosely wound and tightly wound packages. A typical 500-lb. machine may be rated at 3,000 gpm. liquor flow.

Modern package-dyeing machines are equipped with automatic control of the complete dyeing cycle. You can program temperature, rate of rise, direction of liquor flow, and rinse cycles to help in getting reproducible results.

LOTS OF TUBE DESIGNS

A great deal of cotton yarn is dyed on ⅝-in. perforated fiber tubes. These tubes are disposable and cheap, but they have several disadvantages. The ratio of the outside area of the yarn to the inside area is high—about 20 to 1 in a 20-oz. package. So the rate of liquor flow at the two surfaces varies widely, and a higher over-all rate of flow is necessary to get level dyeings.

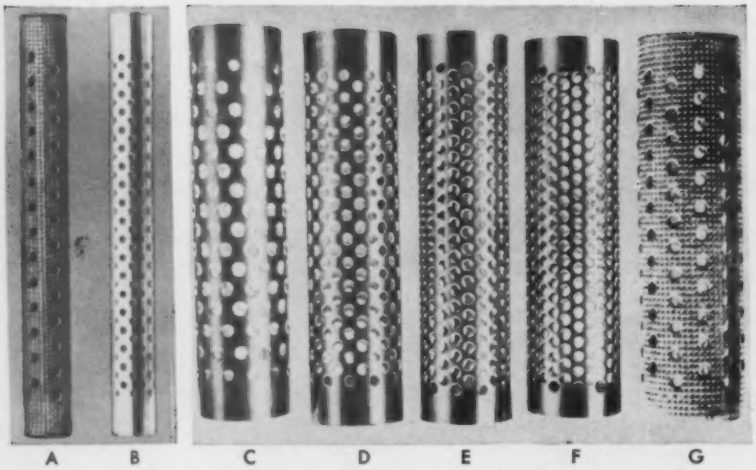
In addition, the small inside area of the tube provides about one square inch of liquor in contact with the yarn. This small yarn area may filter out insoluble matter, or at best, encourage dirty dyeing and cause crocking.

Some vat-dyeing systems call for ⅝-in. stainless steel tubes (A and B in photo, page 72) instead of fiber tubes—but not to any great extent. Some dryers cover the tubes with a knitted sock before winding on the yarn. The sock breaks up the liquor jets coming from the perforations and prevents slippage when winding starts. It also acts as a cushion and permits the dye liquor to get under the yarn. You can cut costs by omitting socks on very low-price work, or whenever the yarn, its end use, and shade permit.

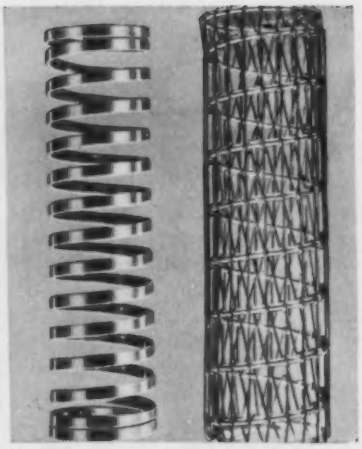
LARGE TUBES—BETTER

Several designs of 1⅝-in. stainless-steel tubes (C, D, E, and F in photo, page 72) are superior, especially for vat dyeing, to the old ⅝-in. fiber tubes. Type G tubes are seldom used except for man-made fibers.

You can also use either of two popular styles (top right photo, page 72) of 1⅝-in. springs instead of tubes. One style is the Franklin



TUBES like these stainless-steel units hold yarn wound for package dyeing. They come in various constructions for various kinds of yarn for various purposes.



SPRINGS come in two styles: the Franklin spring (left) and the Davidson helical spring models (right).

VAT DYEING TODAY—PART 4 . . . *Begins on page 70*

spring; the other style comes in three types: Argo, Davidson, or Annicq spring, which provides greater liquor flow than any other package.

Socks are often used on both large tubes and Franklin springs to prevent crossovers and to even up liquor flow.

You need a special holder (photo, below) for Barber-Colman cheeses. Vat dyes work well on the smaller cheeses of 16- to 22-oz. weight, but the large 40-oz. cheeses offer problems for many package-dyeing systems. Packages 8½ inches in diameter, 3½ inches high, and 2½ inches in core diameter are not conducive to even-flow patterns. However successful trials have been run on 5-lb. cheeses wound on 5-in. holders—so this type of holder is sure to grow more important for package-dyeing systems.

MACHINES—3 TYPES

Three distinct types of package-dyeing machines are in use:

1. Lots of handling—In this early model the hollow perforated spindles are built into a plate mounted at the bottom of the kier. You slip packages over the spindles. When the cover is lowered it forms a seal with the top packages on the spindles. Pump liquor in beneath the spindles and force it through the yarn. After the load is dyed, remove the packages individually for extraction and drying.

This type of machine is least expensive, but it requires a lot of handling. You have to be careful about subsequent extraction in centrifugal extractors to avoid distortion of fiber tubes. Some extractors have individual package holders that eliminate tube distortion. Otherwise, you must insert dowels in the tubes to prevent their collapse.

High labor costs and loss of productive time for the dyeing kier overbalance the system's low initial cost.

2. Less handling—A second system uses carriers with hollow perforated spindles that carry the yarn mounted on top. The carrier is loaded outside the kier, then transported and lowered into the kier. The bottom of the carrier fits snugly on a ring built into the kier circumference so that liquor pumped from the bottom of the kier is forced through the spindles.

The investment in carriers is fairly high, but handling costs are lower than the first method. The yarn is extracted and dried on the carriers, usually away from the kier. Package condition is better as a result of less handling. And dyeing-machine productivity is higher. The system is used for spring packages.

3. Careful handling—A third system is designed mainly for ⅝-in. tubes, but is also applied to the modern 1⅝-in. tubes. Separate carriers are used, but the packages are separated by short collars that mate well with the tube ends. A large wing nut on top of each spindle insures a tight seal for the assembly.

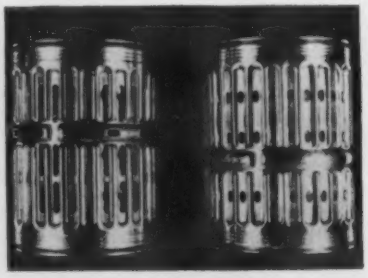
When you use the system for spring packages, lens-shaped separators will help you avoid over-dyed package ends.

Tubes and separators must be handled carefully in the dyehouse. Otherwise leakage and poor work can be expected as a result of deformation that prevents good seals at the many metal joints.

SPEEDING PRODUCTION

Some dyehouses equipped with movable carriers use the dyeing machines for dyeing only. They do wetting out, scouring, rinsing, and

. . . *Turn to page 74*



TUBES like these are used for handling Barber-Colman cheeses.

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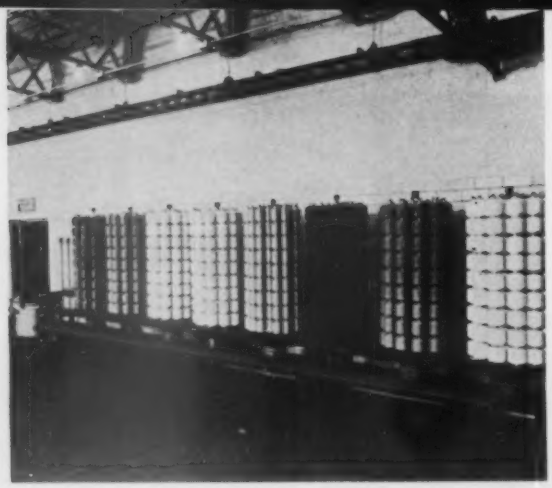
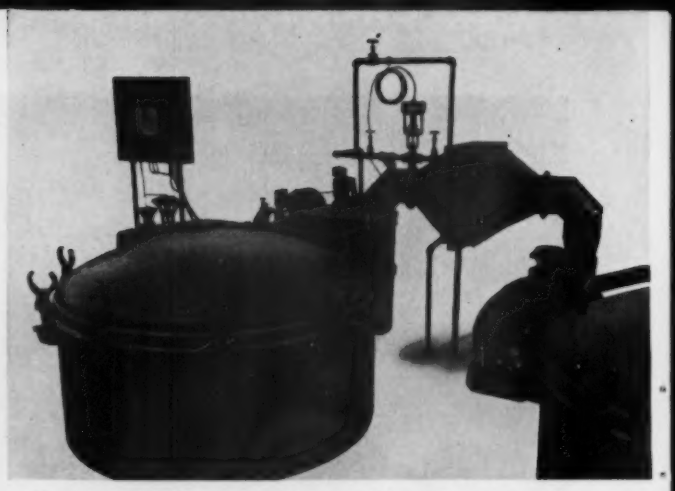
CIRCLE 73 ON READER SERVICE CARD 73



PORT DRYER installed in this good-sized plant shows floor level portion. Air blower and heaters are in basement.



EXTRACTOR-DRYER like this one will dry 500 pounds of yarn in 45 to 50 minutes—90% faster than port dryers.

VAT DYEING TODAY—PART 4 . . . *Begins on page 70*

extraction in a separate vessel.

Lower-powered pumps will suffice for these operations, and you can use the more expensive dyeing machines wherever necessary. Liquor ratios in the auxiliary equipment are as low as 1 to 3 or 1 to 4. So you'll find a savings in water and steam over the larger volumes of liquor used in dyeing machines. You can save scouring liquors for reuse in some setups. The extra investment in relatively low-cost equipment provides considerable operating advantages.

Carrier designs vary according to the size and type of tube that is carried:

• **Low carriers**—The ⅝-in. tubes offer so much resistance to liquor flow that they are seldom stacked more than four high on a spindle. Thus the carriers are low, and capacity comes from increasing the diameter.

• **Tall carriers** — Carriers for 1⅝-in. tubes carry 8 to 10 packages. Diameters are correspondingly less than for the low carriers.

• **Complex carriers**—This type of carrier has a center manifold that feeds two stacks of spindles. Each spindle carries two packages. Better liquor flow with ⅝-in. tubes is possible with this carrier, which is also used for 1⅝-in. tubes.

EXTRACTING AND DRYING

When you have dyed and rinsed your yarn, it will carry 150 to 200% of its weight in water. You should extract most of this excess water mechanically to save yourself time and steam in drying the yarn. Centrifugal extractors for individual packages are still used today, but now most extraction is done on movable carriers on which the yarn is dyed.

You may use either pressure or suction to remove excess water. Air under pressure is somewhat more effective than air sucked through the package. In both systems the incoming air must be filtered to remove dust. Otherwise you'll get dirty package exteriors or interiors. In some systems based on port dryers, the extraction process is carried out on the port and the water is forced out onto the floor.

You can easily dry packaged yarn by placing it in a tray dryer made of open-mesh wire. Stack six or eight trays within a framework on wheels. Then run this carriage into a box through which hot air is circulated. This process is slow, however, and its labor cost is high. You can usually use these dryers where centrifugal extraction precedes drying. Between 12 and 24 hours are needed to dry packaged yarn by this costly procedure mentioned above.

An improvement on this type of dryer uses carriages that are studded with hollow spindles set in a hollow bottom plate. The packages are placed on the spindles and the carriage is run into the chamber and its manifold connected to a port. Hot air is then forced through the packages from inside out. The moisture-laden air is reheated and circulated around the outside of the packages before it is exhausted. This system is more efficient than simple tray dryers but still requires a great deal of labor.

POPULAR PORT DRYERS

Most packaged-dyed yarn is dried on port dryers today (photo above). In this system, you lower the loaded carriers onto a manifold and force hot air through the package from inside out.

Most port dryers exhaust air directly to the working area. Incoming air must be filtered. Air volume is high. A typical four-port dryer will deliver 3,500 cfm. of hot air and require a 75-hp. motor. This system will dry the yarn on four 500-package carriers in about six hours. Labor costs are low, but power and steam costs are high.

Because exhaust of humid air into the dyehouse is uncomfortable, some port dryers are enclosed.

CLOSED SYSTEMS BEST

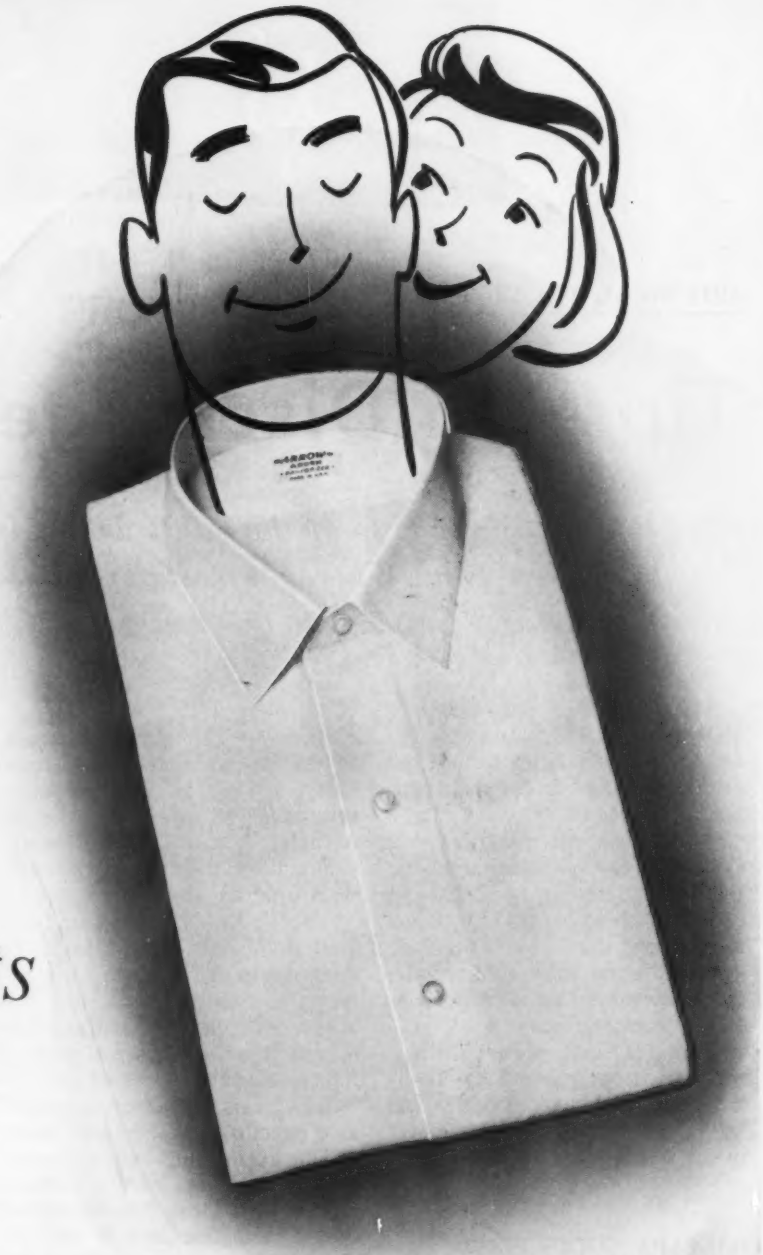
In recent years closed systems of drying packaged yarn have been developed that speed production (photo above). Both high- and low-pressure designs are available. In these dryers, air is put through a blower, a heating unit, through the yarn, and finally through a condenser that removes the moisture. The air then is returned to the blower for reuse.

These systems vary in detail, but will dry a load of yarn in one to two hours.

Horsepower requirements are high, but there is no need for filters and the operation can be closely controlled. Yarn is in better condition for subsequent processing when it is dried by these closed-system methods.

Solvay Activated Hydrogen Peroxide Bleaching Process gives

a whiter, brighter white to Arrow shirts



You always look your best in an Arrow shirt . . . there's good reason. Cluett, Peabody & Co., Inc., maker of Arrow shirts, puts full emphasis on highest quality production. And that's the major reason they have adopted the *Solvay Activated Hydrogen Peroxide Bleaching Process.* It produces better hand and superior whiteness without harm to the goods.

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Although the Solvay Activated Hydrogen Peroxide Bleaching Process is a relatively new method developed by the Solvay Process Division for bleaching cotton, it is already in full-scale, commercial operation in a number of plants. It is available to you under royalty-free license.

Solvay technical service is available, without obligation, to help you evaluate this new process for your plant. Or, send for Solvay's free booklet which gives a complete description of the techniques and results you can expect.

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CIRCLE 75 ON READER SERVICE CARD

CHEMICAL TREATMENT & FINISHING

Tips On Discharge Printing

Here's a concise roundup of the latest details in discharge printing: Why this style is used. Where it's most applicable. And how to avoid trouble spots peculiar to this method of printing.

YOU'LL WANT to use the discharge style of printing for any one of three reasons—or for a combination of reasons:

- The customer wants a solid background color on face and back.
- The pattern may be so intricate or the blotch so big that it is better to start with dyed goods.
- You may want the superior crock resistance that is supplied by a dyed background.

Whatever your reason, you perform discharge printing by killing the background color locally and leaving it white, or by applying over these white areas another color necessary to the pattern.

PREPARE GOODS FIRST

As in any other dyeing or printing operation, a good bottom on the fabric is necessary. First consideration is complete desizing and thorough removal of cotton impurities. Better mercerize the goods, too. You'll get better dyeing—and later better printing.

Get the printer and bleacher together on preparation. A full bleach is seldom necessary, although prior preparation still must be thorough. If there are no areas in the patterns that must be pure white, you can save money by cutting the bleaching formulas. A good bottom is usually sufficient to discharge-print colors on a dyed background.

Your dyer must choose background colors carefully. He should discuss with the printer the requirements for any particular lot. This way, he can select dyes that suit fastness requirements and discharge to full white or not.

Some years back, dyers frequently used direct colors for ground shades and hydro-resisting basic colors to produce discharge effects. Fastness requirements today have outmoded this combination except for the cheapest lines. Diazotized and developed (D&D) directs for the ground shades, and vat colors for the printed effects were the first improvement. But because D&D colors have limited fastness to washing, naphthols largely replaced them. After-treated directs are often substituted to get ground shade when naphthols fail.

You should aftertreat the grounds *after* the printing and aging steps have been completed. Otherwise, copper compounds used in aftertreating may retard or completely resist the effect of the hydro in the discharge colors.

Also you should select naphthols used for ground shades from those that have poor substantivity for cotton: These discharge better. In this group are Naphthols AS, AS-D, AS-OL, AS-TR, AS-BG, and AS-RL. Use Naphthols AS-LB for brown shades where necessary. It is highly substantitive and difficult to discharge. Naphthols AS-SG, AS-SR, and the green shades produced with AS-GR are very hard to discharge.

Thoroughly soap dyed goods to remove loose color or decomposition products of the coupling before printing. This is especially necessary for dyeings made with Naphthol AS-LB and Naphthol AS-GR.

ELIMINATE FACING

Give dyed and soaped goods a preparatory treatment before discharge printing. Usually this consists of padding on a product such as Ludigol (General Aniline & Film Corp.), Sitol (DuPont), or some similar material. Only ¼ ounce per gallon is needed at 100% pickup. This will help eliminate facing, a slight over-all discharge effect that is common to discharge printing. It also will help in reducing halos around the edge of the discharged areas and in preventing streaky effects that sometimes occur if too

. . . *Turn to page 78*

By L. H. FERGUSON.
Superintendent of Printing
Wade Manufacturing Co.
Wadesboro, N. C.

Franklin Colorbred Yarns

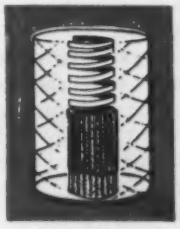
Trade Mark

Just as Franklin Colorbred Yarns prove their quality by delivering properly at the knitting machine, or in warping or winding, and by standing up to the finishing operation, so do they prove their quality to the retail buyer in many ways:—shades in step with fashion trends, uniform dyeing and even superior "hand" in some cases.

If you would like to know more about shades that are in step with fashion trends, ask us for our latest seasonal color card.

In case you don't know why Franklin Colorbred Yarns are uniform in shade, it's because of the Franklin Compressible Spring Package. Soft packages compress more and hard packages less into a column of uniform density. Uniform penetration of dye liquor and uniform shades consistently follow.

If you would like to know more about superior "hand", ask us for the story on FLUFDYED Hi-Bulk Orlon (Dupont's acrylic fiber).



X-ray view of Franklin Package — the "secret" of uniform shades. Don't say "package dyed". Say "FRANKLIN COLORBRED"

*Fashion-Right and Quality Controlled

Franklin Process

COMPANY

Largest Package Dyers in the World of Natural and Synthetic Fiber Spun Yarns for More than Half a Century

DIVISION OF INDIAN HEAD MILLS, INC.

Plants at—

Greenville, S. C. • Chattanooga, Tenn. • Fingerville, S. C.

Sales Offices in—

Greenville, S. C., Chattanooga, Tenn.

New York—1457 Broadway Providence—611 Turks Head Bldg.

much hydro is used in the print pastes. ("Hydro" in this article refers to sodium sulfoxalate-formaldehyde, not sodium dithionite.)

Ludigol, or a similar product, acually destroys the small amount of hydro that is carried along on the face of the print roller. Without this film of print paste, the roller would run dry and the doctor blade would wear. Result: poor cleaning and off-grade printing.

Facing can also occur if you pack goods too tightly in a box truck before aging or if print paste builds up on ager rollers. Facing and streaks seldom show up before aging. If these faults are apparent after aging the first few yards, take goods off the ager and overprint them with a plain roll furnished with thickened formaldehyde or peroxide solution. Either chemical will destroy a small amount of hydro. Then you can age the goods successfully. This treatment was often necessary before the anti-facing compounds were available for this process.

WATCH VAT COLORS

Until the pigment-printing systems were developed, vat colors were mostly used for creating discharge effects.

Print pastes made up for vat colors should contain a thickener that has good running qualities, penetrates only slightly, and does not pick off or build up on ager rollers.

The reducing agent is usually sodium sulfoxalate-formaldehyde, and potassium carbonate is the preferred alkali. These chemicals along with a good hygroscopic agent, such as glycerine or diethylene glycol, are incorporated in the thickener. The stock vat color is then added to this mixture.

About one pound of hydro per gallon of finished color is needed to reduce dark and medium colors. Up to two pounds of hydro per gallon may be needed to reduce the vat dye and discharge the ground color in discharge printing.

A small amount of caustic soda is sometimes helpful in discharging naphthol grounds. Addition of some antraquinone to the discharge paste is also helpful in removing ground color.

You can improve whites by including titanium dioxide or zinc oxide in the print paste. These pigments also brighten the patterns.

You can help ground colors that are hard to discharge by adding zinc sulfate, Lecucotrope O (Jacques Wolf & Co.), Dissolving Salt B (General), or Monopol Brilliant Oil (Jacques Wolf & Co.) to the pastes. Similar products are made by other chemical companies.

A small amount of urea is also helpful in discharging some grounds. Excess hydro may cause haloing around the printed figures.

TRY PIGMENT SYSTEMS

Pigments in either oil-phase or water-phase emulsions have become important supplements to vat dyes in discharge printing. Oil-phase colors are supplied with specially formulated extenders, clears, and anticrock agents. Some binders require curing to fix the color properly. Cure binders after aging and before soaping. Because the hydro and alkali retard curing, take this step after these chemicals have done their work.

The amount of anticrock agent is limited by the caustic and hydro content of the paste. The caustic and hydro flock out the anticrock material and reduce its value in protecting dark shades.

The most recent development in pigment printing is water-phase pigment emulsions. Formulations that will carry the necessary hydro and caustic for discharge printing are available. They work with varying degrees of success, and research is gradually eliminating troubles. The water-phase system produces sharp, clear prints with very low tendency to crock.

WATCH TEMPERATURES

If you dry at too high a temperature, the hydro component of the print paste will be destroyed before it can properly kill the ground color (or reduce the vat print). Best guide to drying is to see that the goods are barely dry off the print-machine cans. Another point: Pile small amounts of goods in a box. For fabrics such as corduroy, 500 yards is a safe figure.

Hot goods packed tightly in a box will overheat and decompose the hydro. You can get color transfer, too, in overpacked hot goods.

Many plants sky the printed goods immediately after drying to cool them. Another method: Pass the goods over cold-water cans at the end of the drying range.

HURRY AGING

Age discharge-printed goods as soon as possible after printing. If they are allowed to lie about more than an hour, there is great danger of decomposition of the hydro. In well-run plants, printing and aging are scheduled so that goods move on to aging promptly or within 30 to 45 minutes. Aging, done in an air-free neutral steam atmosphere, takes 5 to 7 minutes at a temperature of 214 to 220 F.

The goods are usually sprayed with cold water at the entering end of the ager. The water replaces moisture necessary to the dye-reduction process and helps in temperature control. The damp cloth does not absorb moisture from the steam atmosphere in the ager.

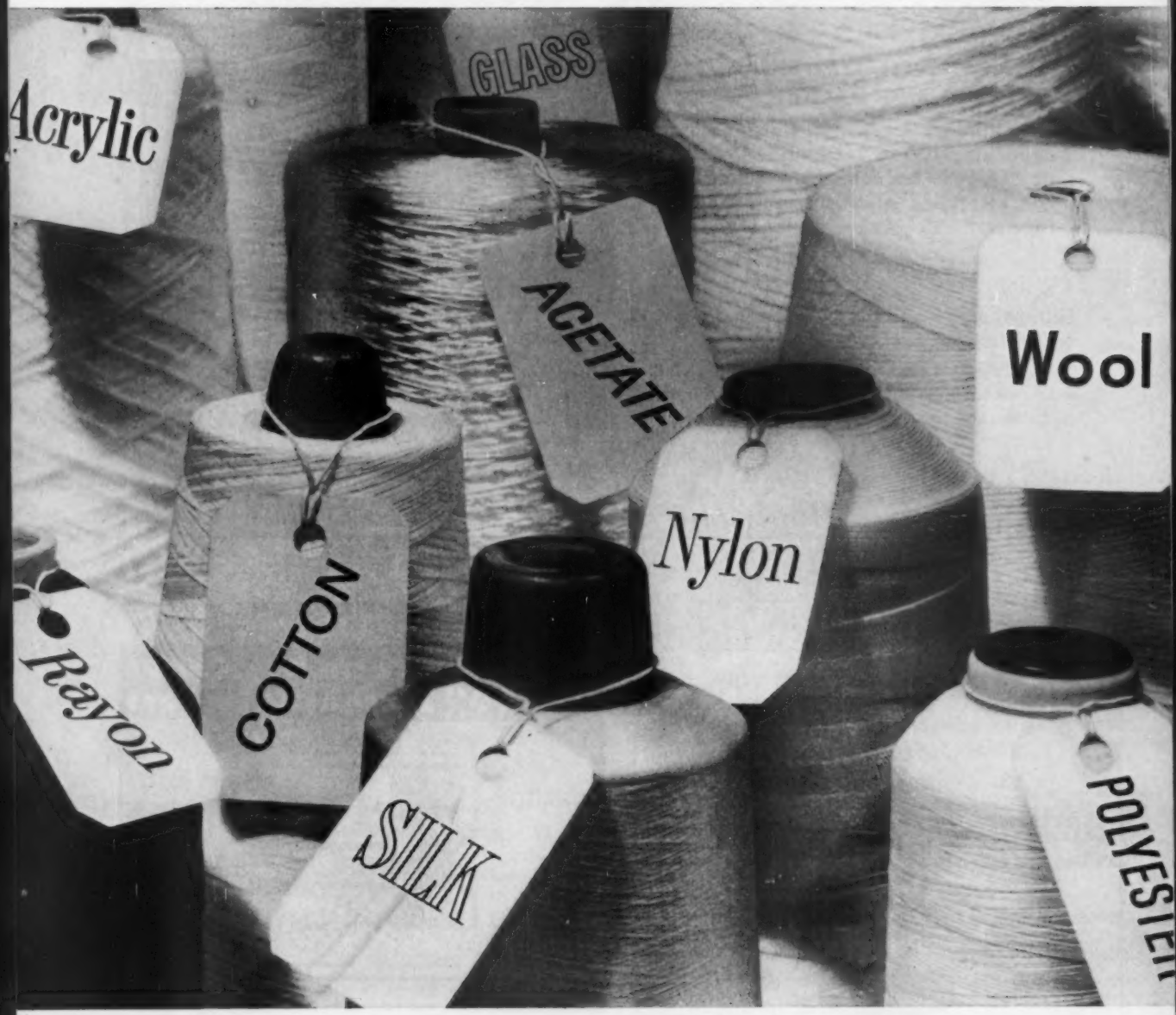
SOAP PRINTS PROMPTLY

It is good practice to soap prints within an hour after the aging process. If prints are not soaped promptly, the by-products of aging can cause markoffs.

Vat prints are oxidized in the soaping range. Sodium perborate or hydrogen peroxide is used to oxidize vat prints in which white figures are present. Sodium bichromate, often used for all-over color prints, yellows whites.

Aged and cured pigment discharge prints that do not have white elements in their pattern require only a thorough soaping to finish the job.

every fiber, every fabric, benefits from the new finishes made with A-C Polyethylene



The new textile emulsions now being formulated with Allied Chemical's A-C® Polyethylene benefit *every* fiber —natural or synthetic—in one way or another over other finishes.

Take wash-and-wears, for example. Here, A-C Polyethylene overcomes loss of hand and tear strength when used as a softener along with conventional resins.

Emulsifiable A-C Polyethylene is permanent through multiple cleaning cycles. It increases abrasion resistance and tear strength . . . imparts extra crease resistance and better sewability.

Your textile chemical supplier either has an A-C Polyethylene finish on hand or can formulate one for your specific use—suitings, dresses, hosiery, curtains, rugs, upholstery. (We make A-C Polyethylene, not finishing emulsions.) Or write for complete information to: Plastics Division, Dept. 612-TW, 40 Rector St., N.Y. 6, N.Y. In Canada: Allied Chemical Canada, Ltd., Montreal.

PLASTICS DIVISION
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CIRCLE 79 ON READER SERVICE CARD

QUALITY DYEING MACHINES FOR QUALITY DYEING

KWG REEL TYPE SKEIN DYEING MACHINE

- **All stainless steel, non-hoist built to capacities 100 to 1000 lb.**
- **Hoist type to capacities of 75 to 600 lb.**
- **For all types of yarns and narrow fabrics.**

Paddle Wheel machines in sizes from 2 to 850 lb.

Skein dyeing machines for zipper tape and narrow fabrics in capacities from 100 to 500 lb.

KWG DUO-FLO Suspended Skein-Type dyeing machines for high bulk orlon, other man made and natural yarns.

Klauder Weldon Giles **MACHINE COMPANY** *Adams Avenue and Leiper Street, Philadelphia 24, Pa.*

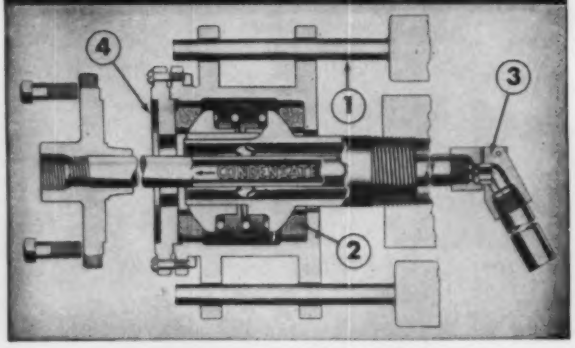
CIRCLE 250 ON READER SERVICE CARD

Model 31 AD Place-and Sewing with SAFE Retractable Pins

20" dia. cloth wheel with 6 pairs of pins retracted by cam for automatic cloth stripping. Retracted pins are safe. Heavy duty gear type sewing head. Single chain stitch. Wide range of stitch adjustments. Motor Drive.

DINSMORE MANUFACTURING COMPANY
BOX 267 SALEM, MASSACHUSETTS

For service on Dry Cans and 30" Slasher Cylinders



Type LJSP with Syphon Elbow

1. Support rods carry all the real weight. Sealing assembly "floats" freely inside. 2. Seals without packing—needs no lubrication or adjusting. 3. Syphon elbow replaces clumsy curved syphon pipe with two straight pipes, passes right through joint. 4. Assembly plate holds parts in place when head is removed.

Johnson ROTARY PRESSURE Joints *First* in the Textile Industry

Write for Catalog J-2002

Shows Johnson Joints for all needs, on dry cans, print cans, calenders, compressive shrinkage ranges, 5' and 7' cotton slashers, etc.

THE JOHNSON CORPORATION
814 Wood St., Three Rivers, Mich.

CIRCLE 255 ON READER SERVICE CARD

PERKINS MULLEN *Fabric Testers*

Model "C" • For knitted, woven and non-woven fabrics

They measure and indicate in pounds per square inch the bursting strength of woven, non-woven and knitted fabrics. Require no sample preparation

Model "A" • For woven glass and other heavy weight fabrics

How they operate...

They clamp and firmly hold a single thickness of fabric between two horizontal flat circular metal plates having one square inch area center openings. Fluid, uniformly displaced by a positive acting pump, applies pressure against a thin rubber diaphragm which is free to expand through the opening in the lower clamping plate and exert pressure against the unsupported portion of the fabric held between the plates. The expanding diaphragm assumes the exact contour of the stretching fabric, distributes uniform pressure over the entire contact area, and searches out any imperfection in the fabric. Eventually, the weakest fiber breaks, causing the pressure to suddenly concentrate at that point and rupture the fabric. A maximum reading pressure gauge connected to the fluid pressure system indicates to the operator the ultimate resistance of the fabric to the bursting force.

What the Burst Test reveals . . .

- **Shows in seconds the comparative strength of one fabric against another.**
- **Shows relative strength of warp and filling yarns in woven fabrics.**
- **Shows comparative strengths of the various fibers involved in the colors and patterns in knitted fabrics.**
- **Indicates fiber bond in non-woven fabrics.**
- **Shows immediate or eventual effects of the use of dyes, chemicals, or processes on all types of fabrics.**
- **Demonstrates the effects of wear, age, and environment on fabric strength.**

Mullen Testers are available in sizes and types to accommodate all types of applications. We solicit your inquiries.

Manufactured and Serviced Exclusively by:

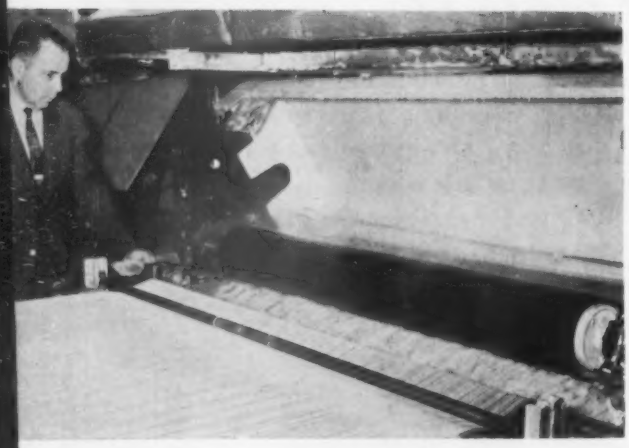
B. F. PERKINS & SON, INC.

TESTER DIVISION

HOLYOKE, MASS., U.S.A.

CIRCLE 81 ON READER SERVICE CARD

TEXTILE WORLD . . . COST CUTTERS

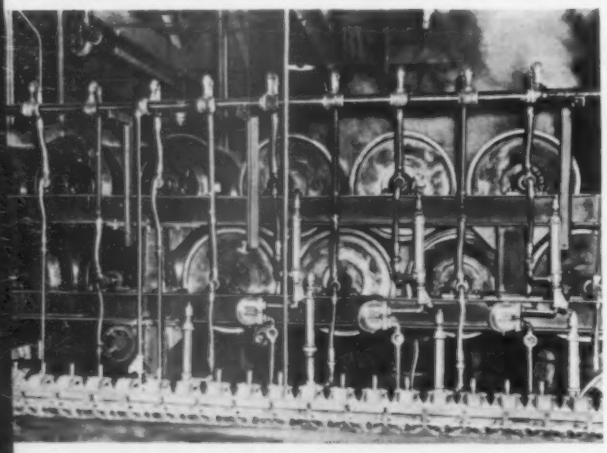


Size-Box Rolls Save Over $400 a Year

Specially compounded covers, called Sealskin, on the top rolls of slashers at Clinton Cotton Mills, Inc., Clinton, S. C., are saving money for the mill in more than one way.

First, because the rolls don't need to be wrapped with fabric or yarn, there's a saving of better than $400 a year in materials. Second, the covers eliminate the labor of rewrapping, running in, and the resultant loss of production.

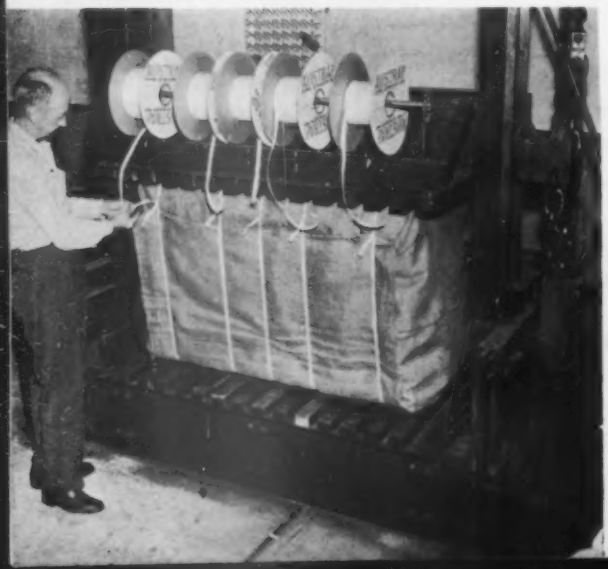
The Sealskin rolls (Stowe-Woodward, Inc.) are made with a compounded blend of synthetic rubber to resist heat, oxidation, sizes, and other chemicals. The rolls run for six months to a year without regrinding. Hardness of this synthetic rubber compound runs from 45 to 50 Shore Durometer.



Better Drainage Speeds Drying

Eclipse Piece Dye Works, Passaic, N. J., is getting 14% better drying efficiency from a stack of 15 cans equipped with a Sarco drainage system.

In the first modification of the condensate removal system, Eclipse equipped the last seven drying cylinders in one range with the Sarco system. They had intended to put the new drainage equipment on the first seven cans, but directions were misconstrued and the last seven cans got the new drainage system. Visible evidence that these cans stayed hot is provided in the photo, showing heavy concentration of water vapor over the cans toward the right (delivery) end. Now all cans at Eclipse are equipped with Sarco drainage systems. Production is up from 98,000 to 112,000 yards per day.



Mill Saves 20% in Strapping Costs

Mayfair Mills, Arcadia, S. C., is saving 20% in over-all strapping costs for baled-cotton-gray cloth. The new strapping, Avistrap Cord Strapping (Industrial Packaging Department, American Viscose Corp.), is used in widths of ½ to ¾ inch on bales weighing up to 800 pounds. The strapping is made of high-tenacity rayon cord and has proved to be economical, easy-to-handle, and safe.

Strapping is mounted at the baling press in 21-lb. rolls, one roll for each strap to be placed around the baled cloth. Spools of strapping are 13½ inches in diameter and 6 inches wide. There are 700 to 1,300 yards per spool.

A shipping employee ties knots to secure strapping, then cuts the knot with a scissors or pocketknife.

Trucks Halve Labor Costs

Rider-type Jack Stackers (Lewis-Shepard Products, Inc.) have cut in half over-all labor costs for yarn storage at Winnsboro Mills, Textile Div., U. S. Rubber Co., Winnsboro, S. C. Remote-control trucks with fast positioning of the carriage platform facilitate heavy work-load handling for an operator.

Selective storage and order picking of a wide variety of yarns needed to prepare warps for weaving are possible with the truck. Now one man instead of two stores and fills production orders.

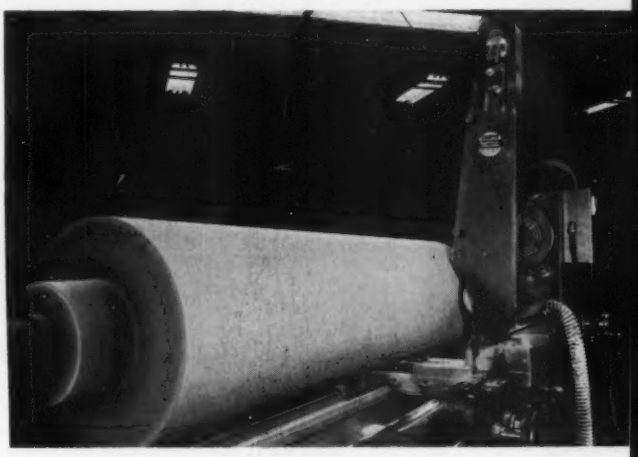
Big advantage: Order picking of less-than-pallet-load quantities is efficient and convinced. The operator can pick up or unload the exact quantity of yarn desired, since he can ride up or down from the appropriate rack on the platform.

Cuts Roll-Grinding Time 80%

Roll-grinding costs have dropped 80% at the Marietta, S. C., plant of J. P. Stevens & Co., Inc. Reason: a new Curtis-Carborundum roll-grinding unit.

The roll you see in the photo is a good example of how this unit performs. In this case, about ¼ inch of rubber had to be removed. The first cut was taken with a 60-grit abrasive belt working with a 90-series aluminum and rubber contact wheel to remove stock rapidly. Then a 180-grit belt was used to remove rough scratches. Finally the 90-series contact wheel was replaced with a 60-series all-rubber contact wheel, working with a 220-grit belt.

Total time: 65 minutes instead of the estimated 6 to 7 hours usually required for grinding solid abrasive wheels.



No More Clearer Waste at Cards

Carolina Mills, Inc., Plant No. 3, Newton, N. C., has eliminated clearer waste at its cards, and now there is no need for cleaning. Result: 30-min. per day saving in time. A card tender used to spend 10 minutes a shift taking out the clearer roll, cleaning it, and wiping off the card in this area.

How's it done? Carolina Mills replaced the feed-roll clearer on its cards with a 1-in. wide strip of plasticized fabric (photo) that rubs against the rolls. This fabric is fastened to a metal strip that is bolted to the lickerin cover. Pressure of the fabric on the feed rolls keeps them clear at all times.

One big intangible advantage: quality improvement. No longer does clearer waste fall into the work, causing neps and other imperfections.

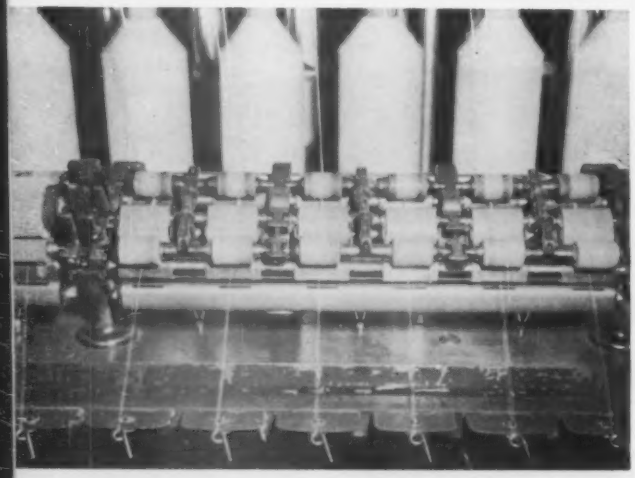
. . . *Turn the page*

Cloth Upgraded $5.92 per Loom, a Week

Cutting off borderline constructions and going after coarse-weave denims for blue jeans in a big way presented Texas-size problems for Texas Textile Mills, McKinney, Tex. The mill was swamped with uneven fabric.

So the company bought five Hunt let-offs (Southern Machinery Co.) for evaluation. It didn't take long for it to stop evaluation and order 150 new let-offs for "quick-as-possible delivery." And as fast as the let-offs are put on looms, uneven cloth is eliminated.

But let's look at what Bryan C. Miller, mill president, has to say about results: "Reduction of off-goods for 120 hours at the usual discount has averaged $5.92 per loom. I am convinced that there will be even further reductions as a result of this installation."



Improved Apron Cuts Ends Down 50%

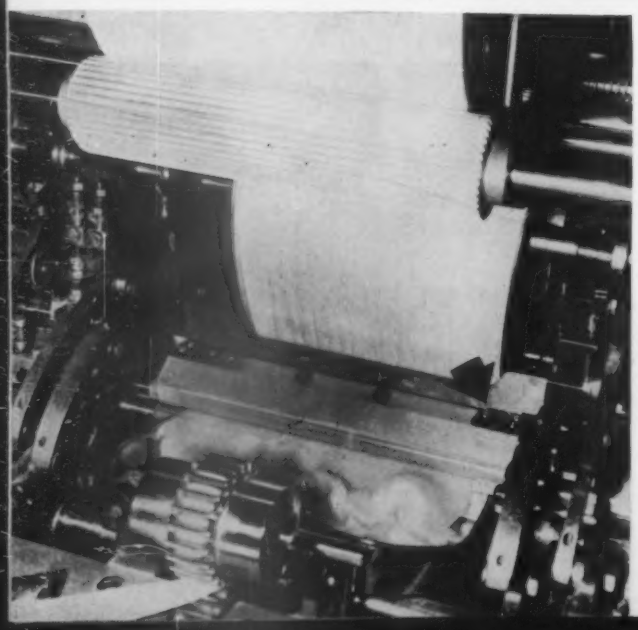
Linn Mills Co., Landis, N. C., used to have a lot of apron slippage at spinning. Many remedies failed, but the mill finally came up with an answer: A new apron with a special inner lining.

No matter how the company had adjusted the drafting system, the middle knurled roll vibrated and chattered. This malfunction caused excessive ends down and weak yarn.

Fixers kept oiling and overhauling the frame. But in a week or two aprons would start acting up again.

The superintendent decided that the trouble must be in the aprons, not in the spinning frame. So he tested all types of aprons. Finally he hit on one that stopped the trouble—the Armstrong apron.

Results: 50% fewer ends down. Breakup factor up 200 points. And operator morale up 100%.



Comber Clearer Ups Production 35%

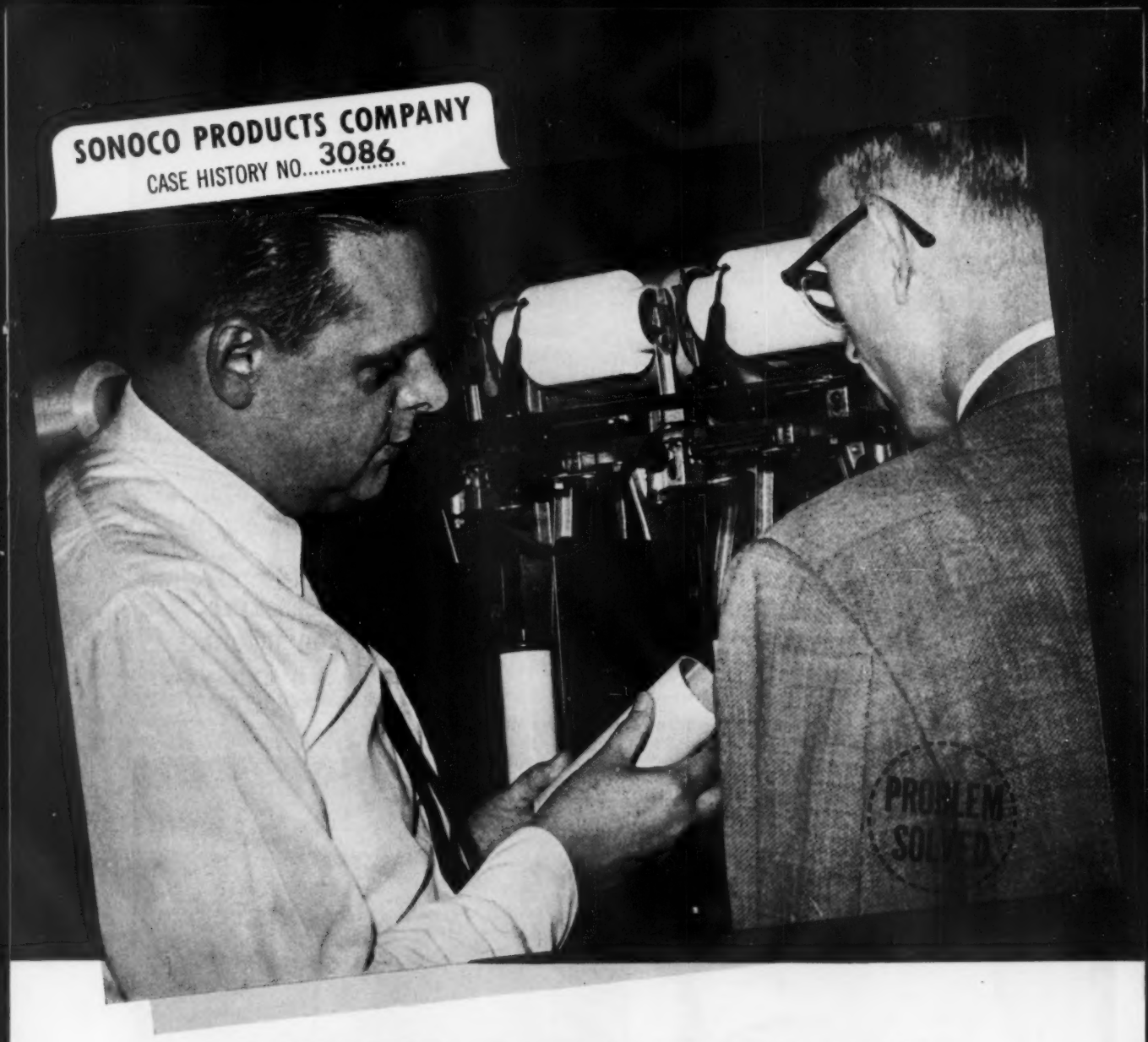
Grantville (Ga.) Division of Flagg-Utica Corp. has hiked comber production 35% by eliminating lap-ups at the feed roll. How? By installing small brass clearers (photo) at either end of roll.

Lap-ups on comber feed rolls usually start at the outside and work toward the middle. These small clearers stop lap-ups before they start—and rolls stay clean almost indefinitely. The clearers substantially cut operators' over-all cleaning time and greatly improve sliver evenness.

The clearers can be installed with a screwdriver. It takes about 10 minutes to outfit a comber completely with the attachment. Manufacturer is Gibson Die & Stamping Co. Cost: $1 per unit.

Grantville has installed the device on four Saco-Lowell Model 57 combers that produce 27½ pounds of 50-grain sliver per hour per delivery.

CIRCLE 85 ON READER SERVICE CARD→



PROBLEM: Develop carriers for stretch nylon yarn

When stretch nylon yarn was introduced, there was a basic need for a completely new type yarn carrier.

Stain was a problem in the processing. Additional means of yarn identification and a collapsible carrier that would allow the yarn to relax uniformly throughout the entire package were required.

In solving this problem Sonoco developed a number of new tubes. Critical dimensional requirements were met and stainproof surfaces were provided. An adequate number of yarn identification methods, including lacquer tips, scores and notches, were made available. And, because the strength of the tubes is rigidly controlled in manufacture, they collapse properly and aid considerably in the production of uniform finished yarn. These Sonoco developments eliminated the need for more expensive methods in processing stretch nylon.

Technical service of this type is an added benefit when you buy from Sonoco. *Only Sonoco*, in its field, provides the continuous research, product improvement and integrated manufacturing needed to meet the ever-changing techniques of the textile industry. *Let Sonoco's more than 60 years' experience help you!*

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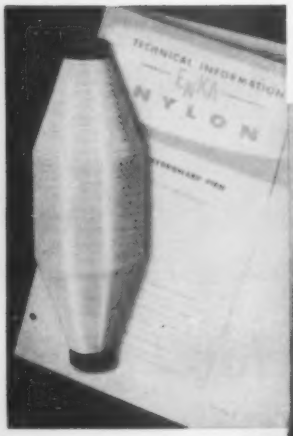
SONOCO PRODUCTS COMPANY, HARTSVILLE, SOUTH CAROLINA • Mystic, Conn. • Akron, Ind. • Ravenna, Ohio • Lowell, Mass. • Holyoke, Mass. • Phillipsburg, N. J. • Longview, Texas • Philadelphia, Pa. • La Puente, Calif. • Fremont, Calif. • Atlanta, Ga. • Richmond, Va. • **MEXICO:** Mexico, D.F. • **CANADA:** Brantford, Ont. • Granby, Quebec

ENKA

keeps its eye on the future... its yarns in the news!

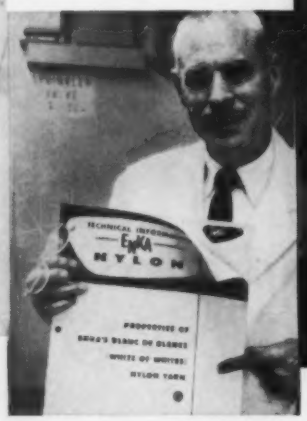
Day after day, season after season, ENKA produces fine, modern nylon and rayon yarns that make the news for converters, cutters and retailers.

Here are some recent news makers!



News! The Enka nylon **Hydrowarp*** **Pirn** is designed to unwind yarn from a parallel plane. In operation it increases net yarn weight per pirn, improves unwinding tensions, actually reduces costs in texturing, warping, knitting, throwing. Write for Technical Bulletin NM-4 on Enka's nylon Hydrowarp pirn. Marketing Technical Dept., American Enka Corporation, Enka, N. C.

*Trademark Whitin Machine Works



News! Enka's **Blanc de Blancs**™ **Nylon**, the dazzling white yarn created especially for foundations and intimate apparel. The whiteness is *yarn-deep* in this wonderful nylon, resulting in uniformity throughout a garment or a line. Write for Enka Technical Bulletin NM-2 for more facts on Blanc de Blancs nylon yarn. Marketing Technical Dept., American Enka Corporation, Enka, N. C.

News! Enka nylon for **Sheers** is made in a larger filament size for a smoother, more versatile hand. It creates softer chiffons, more supple organzas, crisper organdies. And Enka nylon's affinity for dyes results in truer color clarity. Find out more about Enka nylon yarn for sheer fabrics. Call Enka Merchandising in New York, 350 Fifth Ave., PE 6-2300 or the Enka sales office nearest you.

Nylon sheer dress by Fred Perlberg in an Avila fabric.

News! Enka **Softglo**® rayon is a soft, low-luster yarn for decorator and upholstery fabrics. Softglo rayon brings rich beauty and lasting strength to luxurious fabrics designed for the home. For full details on Enka Softglo rayon, contact Enka Merchandising at 350 Fifth Ave., New York 1, N. Y., PE 6-2300, or the Enka sales office nearest you.

Chair by Sam Moore in a Bartson fabric.

American ENKA Corporation, Enka, N. C. • Producer of nylon • rayon • yarns • fibers

NEW YORK OFFICE: 350 Fifth Ave., New York 1, N. Y. • DISTRICT SALES OFFICES: Greensboro • Providence

What's New This Month in . . .

Fibers, Yarns, and Fabrics

Coming Next Year

Du Pont is building a pilot plant at Richmond, Va., to produce a new high-temperature-resistant nylon. It is scheduled for completion in 1962.

The company says that this fiber, called HT-1, shows great promise in industrial uses—electrical insulation, filtration of hot gases, and special-duty beltings and reinforcement of high-temperature hose. Du Pont is also exploring application of the new fiber in military uses in the missile programs.

Polynosic Gets Nod

The United States Patent Office has granted Hartford Fibres Co. a certificate of trademark registration for Polynosic, the company's term for its Zantrel fiber—a modified cellulose rayon.

The word Polynosic is coined from "poly" meaning many and "nosi" meaning fibrils.

Hartford will use the term Zantrel Polynosic rayon to distinguish it from conventional rayon.

New Lining Debuts

Something's new in linings at Troy Mills, Inc. It's a mediumweight lining that can be machine washed with maximum shrinkage of 2%. The fiber content is 50% Orlon and 50% rayon.

The fabric—napped or not—is available in a variety of plaids and colors. Slated for body liners and kickers in coats, the liner's minimum-shrinkage feature also makes it suitable for purses, shoes and hats.

Flocked Dynel

Multi-Fabrics Corp. is now making a Dynel fabric flocked with rayon fibers. The new material comes in nonwoven and woven forms.

The soft-surfaced cloth can be molded to contoured surfaces. This makes the fabric applicable in packaging, apparel, and novelties.

Any standard plastic-molding process can form the fabrics. The procedure involves heating, shaping, and cooling. The flocked surfaces during shaping stay soft—while the Dynel fabric takes the shape of the mold and remains firm.

Cuts Labeling Costs

There's a new permanent, pressure-sensitive label for rugs, upholstery, and bedding on the market. It stays unaffected even with extreme changes in temperature, needs no heat sealing for application.

The new Magi-Stik labels are available in rayon, satin, gold and silver foil, and other materials from Jackmeyer Corp.

Washable Nonwovens

A break-through in nonwovens—Luston Draperies, Inc. has introduced washable nonwoven draperies with added wet strength and texture retention. The basic fabric is made of Avisco rayon fibers firmly bonded into a textural cloth.

The new draperies are sun resistant and flame retardant. A warm iron touches them easily.

Eight patterns in ten colors on a white background are available in 90- or 84-in. lengths. They retail at $2.29 a pair.

Zefran Improved

A new development in Zefran will make its first appearance next year. It's called Type 1207 and it replaces Type 1203. Manufacturers will use the improved fiber in wool blends and will be able to get deeper shades and a broader color range. Its price range equals that of Type 1203.

First fabrics containing the new-type fiber will be in men's wear next spring. Fall 1962 will see it in woven and knitted outerwear.

Foam Fabrics a Hit

Yardage figures of laminated-knit goods are soaring. In 1959 production was almost nil. Then suddenly in 1960, manufacturers turned out 15-million yards. If the increase continues at the current rate, 1961 yardage will exceed 90-million yards of knit goods.

What does this mean in dollars and cents? Dollar volume of foam produced for knit-yard goods was about $7-million in 1960—and may rise to $40-million by the end of this year. If the demand for this fabric grows at the current trend during 1962, production will probably reach $75-million.

Axminster in Nylon

Roxbury Carpet Co. has developed a new nylon axminister with an abstract pattern. The design, called Delmonico, is one of the first axministers to be introduced in nylon fiber.

A mixture of soft- and tight-twist yarns gives the carpet a velvety touch with textural contrast. Retail price is $10.95 a square yard, available in 9-, 12,- and 15-ft. widths.

Lining Fabric Due

In a few months you'll be seeing Princeton Knitting Mills' new Dynalure pile lining in garments. The company has aimed the fabric at the fall market.

What is Dynalure? It's a curled pile that looks like shearling. The pile is 100% Dynel on a cotton backing.

Princeton offers the new fabric as a plain-pile lining, a Scottfoam-laminated liner, and two self-lined, Scottfoam laminates.

More Lofted Nylon

Firestone Tire & Rubber Co. will start producing lofted-nylon filament for carpeting at Hopewell, Va. The company will become one of three leading producers of lofted-nylon filament with an initial capacity of 4-million pounds.

Firestone will market the yarn under the trade name, Nyloft, acquired from Industrial Rayon Co. The process involves the wrinkling or curling of nylon staple fiber into a bulky material resembling wool.

TEXTILE WORLD . . . News from the Mills

Applied Fiber Co., Grantville, Ga., established by Felix Montgomery Jr., will manufacture industrial-cotton-sewing thread in a 29,000-sq.-ft. plant. The firm has installed machinery for a pilot-sampling operation in carding, spinning, twisting, dyeing, and winding.

Arfa Mills, Inc., New York, N. Y., has completed a 20,000-sq.-ft. plant in North Caldwell, N. J. The plant will specialize in the manufacture of elastic fabrics and operate as a subsidiary under the name of Arfa Mfg. Inc.

Avondale Mills, Sylacauga, Ala., has purchased 35 288-spindle, 4-in. gage frames for its Catherine plant and 21 Model F5 Superflex frames for its Pell City plant from Whitin Machine Works.

Belfast Flax Spinning Co. Ltd., Dublin, Ireland, has closed after 97 years as a linen manufacturer. The firm employed between 1,600 and 2,000 workers.

Carroll Hosiery Corp., Hillsville, Va., has ended its operations after 23 years as a manufacturer of full-fashioned hosiery.

Circle Dyeing & Finishing Corp., Paterson, N. J., has taken over the former Plymouth Dyeing Co. plant in Paterson. The company plans to process nylon, polyester, and other synthetics and will install machinery for processing silk and silk combinations.

Davenport Hosiery Mills, Inc., Chattanooga, Tenn., has stopped operations at its East 11th Street plant in Chattanooga. The firm has transferred dyeing and finishing of women's hosiery to its plant in Charlotte, N. C.

Dyersburg Cotton Products, Inc., Dyersburg, Tenn., is installing six Saco-Lowell SJ Magne Draft spinning frames and one Saco-Lowell FS-2 roving frame.

Hellwig Dyeing Corp., Philadelphia, Pa., has closed down permanently. The company specialized in dyeing and finishing silk and synthetic fabrics.

Imperial Yarn Mills, Inc., McAdenville, N. C., has placed a contract for 50 new Arrow M-1 spinning frames totaling 15,000 spindles with Roberts Co. Total cost of the installation is reported at approximately $500,000.

Jordan Mills, Inc., Columbus, Ga., has purchased a quantity of SJ-3H Saco-Lowell Tru-Set spinning frames for immediate installation in its plant.

The Kendall Co., Boston, Mass., is actively negotiating for the purchase of the assets of the J. W. Wood Elastic Web Co. of Stoughton, Mass. J. W. Wood employs 350 at plants located in Stoughton and South Easton, Mass., and Shelby, N. C.

Kitan-Dimona, Dimona, Israel, a subsidiary of Kitan-Telaviv, plans to expand its capacity from 14,000 spindles to 38,000 spindles.

Lowndes Products, Inc., Philadelphia, Pa., has purchased the Curlator fiber-web processing machinery of Avondale Mills.

Madison Throwing Co., Madison, N. C., has purchased Baldwin Processing Co., Milledgeville, Ga. However, the Milledgeville manufacturing facilities will continue to operate as in the past.

Mexia Textile Mills, Inc., Mexia, Texas, is installing four Model M6A Even-draft drawing frames and 23 Model N spinning frames.

National Associated Mills, Inc., New York, N. Y., plans a $3-million expansion of its seamless-hosiery operations at Greneda, Miss.

Rich-Flex Mfg. Corp., Central Falls, R. I., has purchased the No. 1 building of the closed Sayles Finishing Plants, Inc., Saylesville, R. I. The firm plans to occupy the 21,000-sq.-ft., one-story building before the end of the year.

Roseboro Spinning Mills, Roseboro, N. C., has begun an expansion and modernization program with a new 12,000-sq.-ft. addition.

Shuford Mills, Inc., Hickory, N. C., has started to build an addition to its Brookford plant. It will serve as a wool-spinning division and is scheduled to be in operation early in 1962.

Spurgeon Hosiery Corp., Philadelphia, Pa., is planning to construct a new manufacturing plant and offices in Lincolnton, N. C. The project will cost over $300,000.

Textiles-Inc., Gastonia, N. C., has purchased 16 Saco-Lowell high-production combers and 32 deliveries of Saco-Lowell 3 over 4 Versa-Matic drawing frames. The equipment will be installed in the Arlington plant.

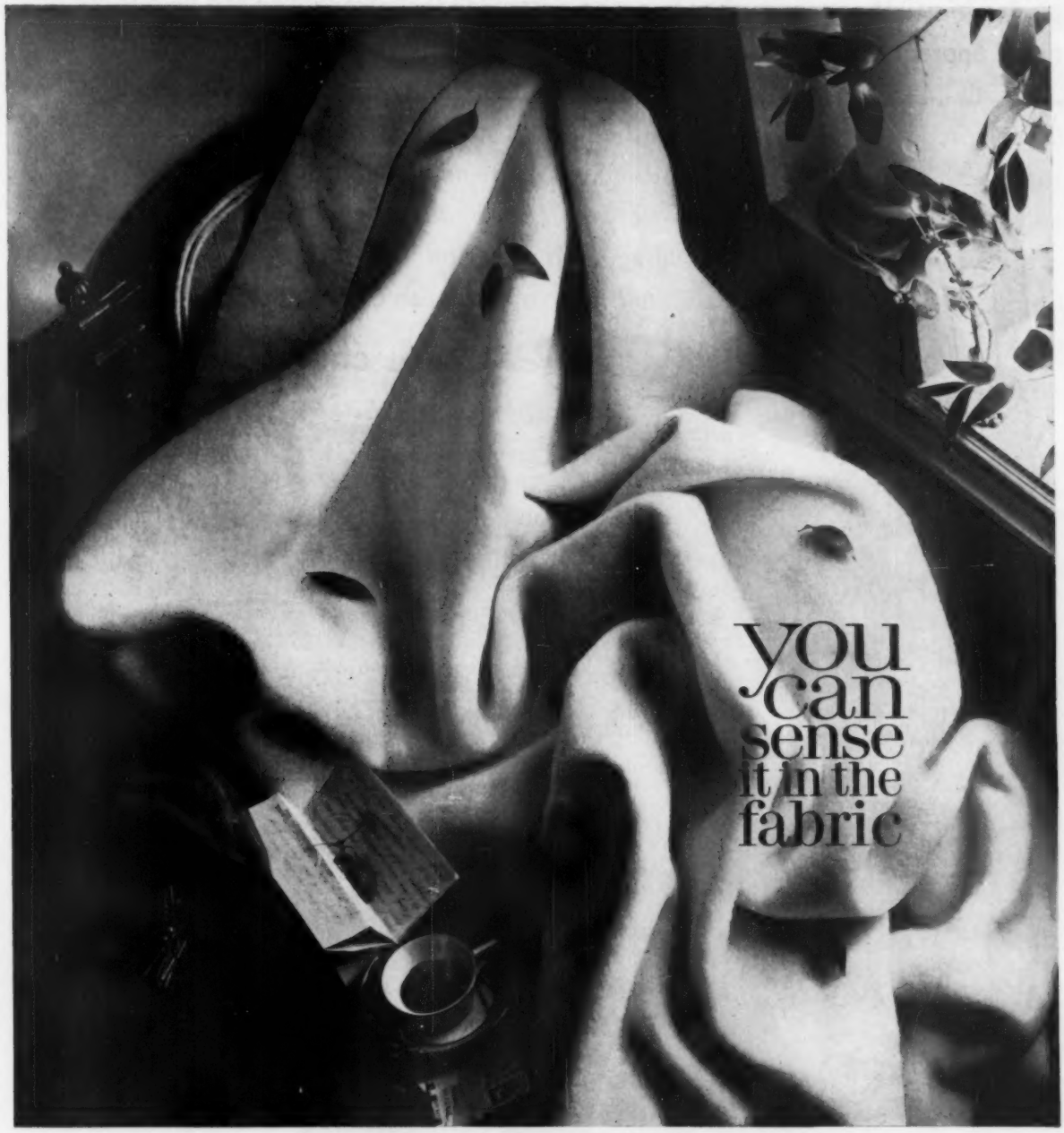
Textile Service Inc., Hawthorne, N. J., has closed its plant in Hawthorne after eight years. The company will concentrate operations at its South Charleston, S. C., facility, now being expanded by a 10,000-sq.-ft. addition.

Van Raalte Co., Inc., New York, N. Y., is adding a new knitting plant, equipped with high-speed machines, to its Saratoga Springs, N. Y., plant. Dyeing and finishing facilities for the present plant are also being modernized in the $500,000 expansion program.

Walker Hosiery Mill, Hickory, N. C., has initiated a $10,000 expansion and remodeling program expected to increase production by about one-third.

Wunda Weve Carpet Co., Greenville, S. C., will install a complete custom-carpet production unit at its Greenville plant. The unit represents an additional $100,000 investment for the company.

AS APPEARING IN: New York Times, House Beautiful, House and Garden, Living for Young Homemakers



The Lightness of Creslan...the fiber with the six senses of fashion.
Lightness is one of the six senses of fashion. It is airiness, grace, serenity...an effortless ease. In its gentle manner, it makes everyday living a lighthearted pleasure.
Now, Creslan acrylic fiber is breezing a buoyant sense of lightness through our fashions and home furnishings. Creslan makes fabrics cloud-light, soft, and comfortable...giving warmth in winter, icy coolness that keeps crisp in summer. Look for them. You'll love all six senses: lightness, color, vitality, taste, touch, and beauty. American Cyanamid Co., N. Y.

Offices: 111 West 40th St., N. Y.; 3333 Wilkinson Blvd., Charlotte, N. C.; 2300 South Eastern Ave., Los Angeles, Cal.; 40 Fountain St., Providence, R. I.

CYANAMID
Creslan®
LUXURY ACRYLIC FIBER

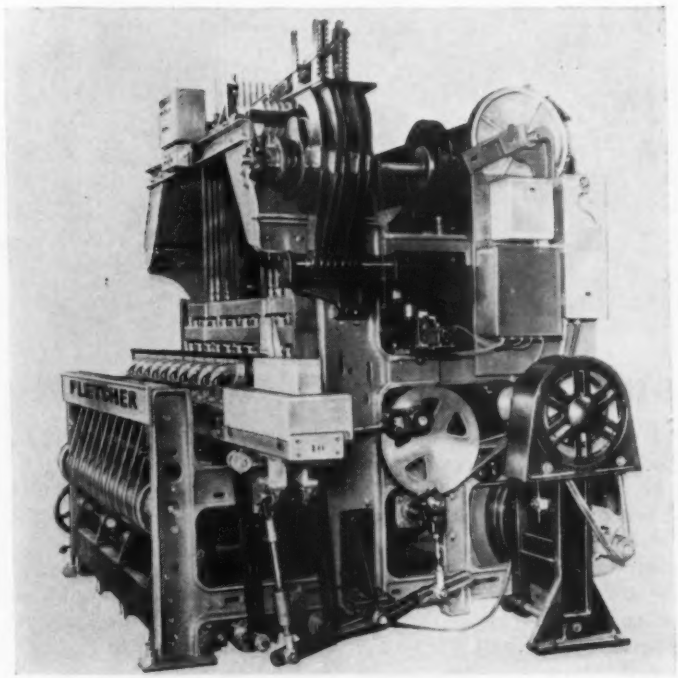
CIRCLE 89 ON READER SERVICE CARD 89

Strike up the band! Celanese home furnishings promotions get a big fanfare. It's happened year after year, ever since the introduction of a **unique promotional approach** to decorative fabric selling. The theme for '61 is **SCENE CHANGERS ... Ready-Mades in Fabrics with Celanese Contemporary Fibers.** Ideas are already brewing for programs for '62, so be on the lookout for their announcement. Be sure you're ready with new weaves and constructions made with Celanese Contemporary Fibers so you can get **your full share** of every future promotion. Remember, too, that Celanese is always interested in working with you on new fabric constructions. Celanese Fibers Company, 522 Fifth Ave., N.Y., 36 (a division of Celanese Corporation of America) Celanese®

Celanese contemporary fibers

For more information on any of these items, circle appropriate number on the Reader Service Card, next to the back cover.

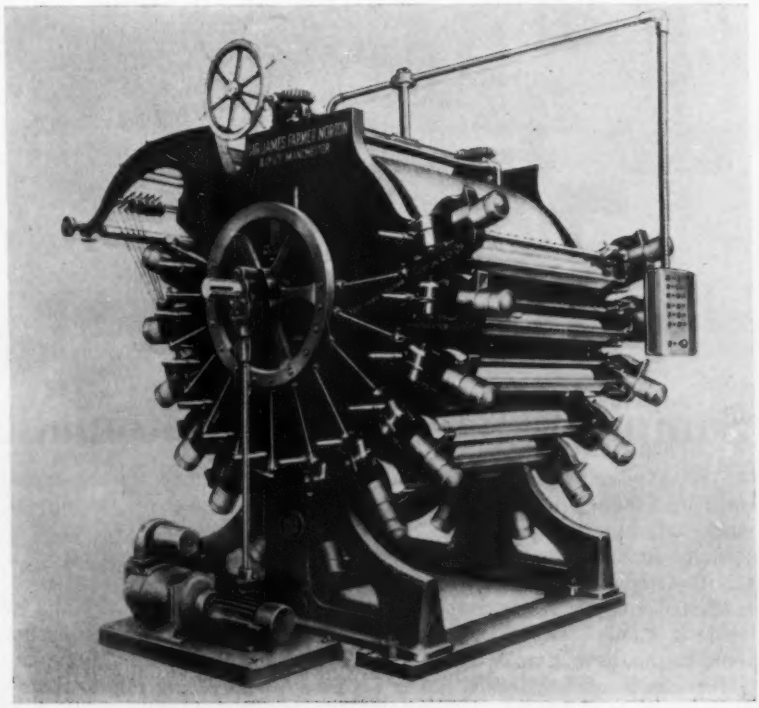
Weaves Tape At 250 PPM.



A high-speed loom, made by Fletcher Industries, Inc., is designed to weave nylon seat belts at 250 ppm. This heavy-duty loom makes continuous belts of high quality at a speed not now available to the industry. Because it's designed for a specific fabric—automobile seat belts—production cost is kept to a minimum and efficiency is kept at a maximum.

The fully automatic loom comes with a warp-stop motion and a predetermined pick counter. Warp yarns are delivered from beams or individual-end creels. The unit makes 10 seat belts at a time. This high-speed loom uses an individual motor drive and cam harness motion. **(Circle E-1 on Reader Service Card)**

Roller Printing With 12 Colors



This 12-color printing machine, developed by Sir James Farmer Norton & Co., Ltd., has fingertip control. Each nip can be pneumatically or hydraulically operated from a central-control panel. Pressure is varied by the turn of a knob. Print rolls are advanced or retarded through differential-type box wheels fitted with positive electro-magnetic brakes.

Printing machine takes fabric up to 72 inches wide and runs at 120 ypm. Repeat size goes to 25 inches. For non-stop operation there is a continuous scray backfeed unit. A powder-type blanket washer reduces steam cost and eliminates back grey. Unit has a totally enclosed drive. **(Circle E-2 on Reader Service Card)**

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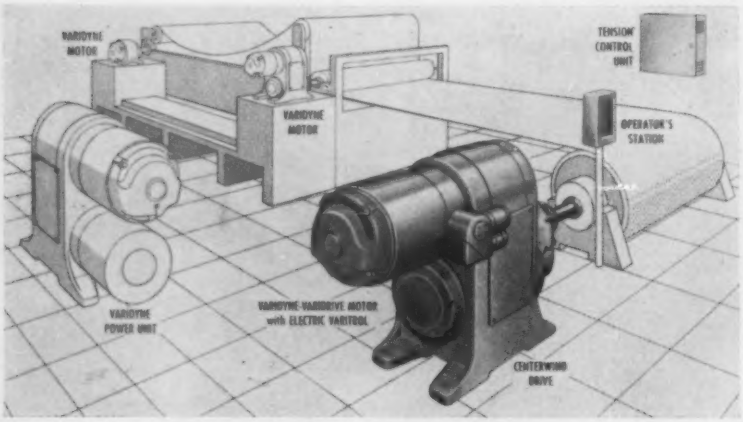
For more information on any of these items, circle appropriate number on the Reader Service Card, next to the back cover.

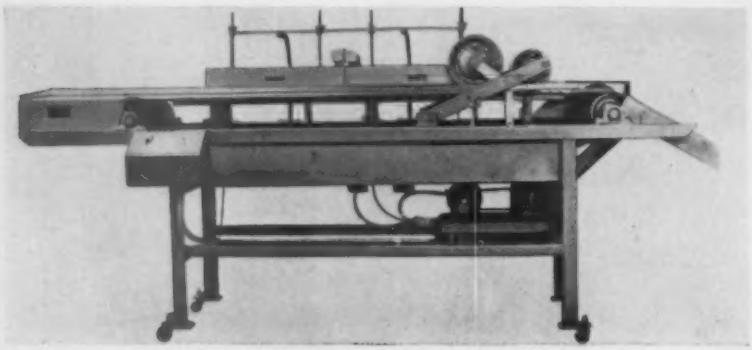


Controls Tension Automatically

This Centerwind Drive, designed by U. S. Electrical Motors, Inc., is part of a frequency-controlled a.c. drive system. The unit synchronizes line speed and linear-winding speed to insure even tracking and better-quality rolls.

For constant- or tapered-tension winding the operator sets the tension at any desired level. Accurate low tension can be maintained on low-strength material. On the restart the system starts at the speed of the original stop.

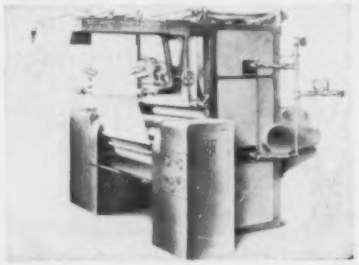
Three types are available: (1) Varidrive gives exact constant- or taper-tension control. (2) Torque Motor controls at a low tension with a fixed taper. (3) Mechanical Clutch comes with a manual or automatic control for constant- or taper-tension. System works with high build-up ratios. **(Circle E-3 on Reader Service Card)**



Sample Labeling Goes Automatic

This rug-sample labeler, developed by Sentinel Industries, makes label attaching automatic. With this unit one operator can handle up to 10 samples per minute. The machine puts on a thermoplastic label. It handles any thickness in wool, cotton, or man-made fibers.

Pressure is applied equally across the width and length of the sample, and no mark is left on the sample. The unit works on 115 v., a.c. Standard equipment included: a positioning table, a variable-speed drive, belt-cooling blower, and a discharge chute. Label indicator comes in 14, 18, and 27 inches. **(Circle E-4 on Reader Service Card)**



Flash Steamer Uses Two Heated Cylinders

This flash steamer, for aging printed fabrics, handles 20 ypm. with a 20-sec. reaction time. Because the unit is essentially a two-bowl padder it can also be used for desizing, bleaching, and dyeing. Fabrics up to 72 inches can be processed. Advantages—short warm-up, no condensation problem, markoff eliminated, and low steam consumption. Sir James Farmer Norton & Co., Ltd. **(Circle E-5 on Reader Service Card)**

E-6—Electric hoist features aluminum housings to improve heat dissipation. This unit uses a mechanical brake that automatically compensates for wear. All bearings are factory-lubricated or splash-lubricated reducing maintenance. American Chain & Cable Co.

E-7—Pillow block comes in ½- to 1-in. size. It's a strap-type unit available in sintered bronze or graphited bushings. The pillow block is supplied permanently lubricated or with oil or grease fittings, as required. Randall Graphite Bearings, Inc.

E-8—Belt fastener runs smoothly on 2- to 6-in.-dia. pulleys. It can be installed easily with no special tools. The fastener uses malleable-iron teeth for quick and easy shortening of belts. It works on 1- and 1¾-in. wide belts. Peerless Hardware Mfg. Co.

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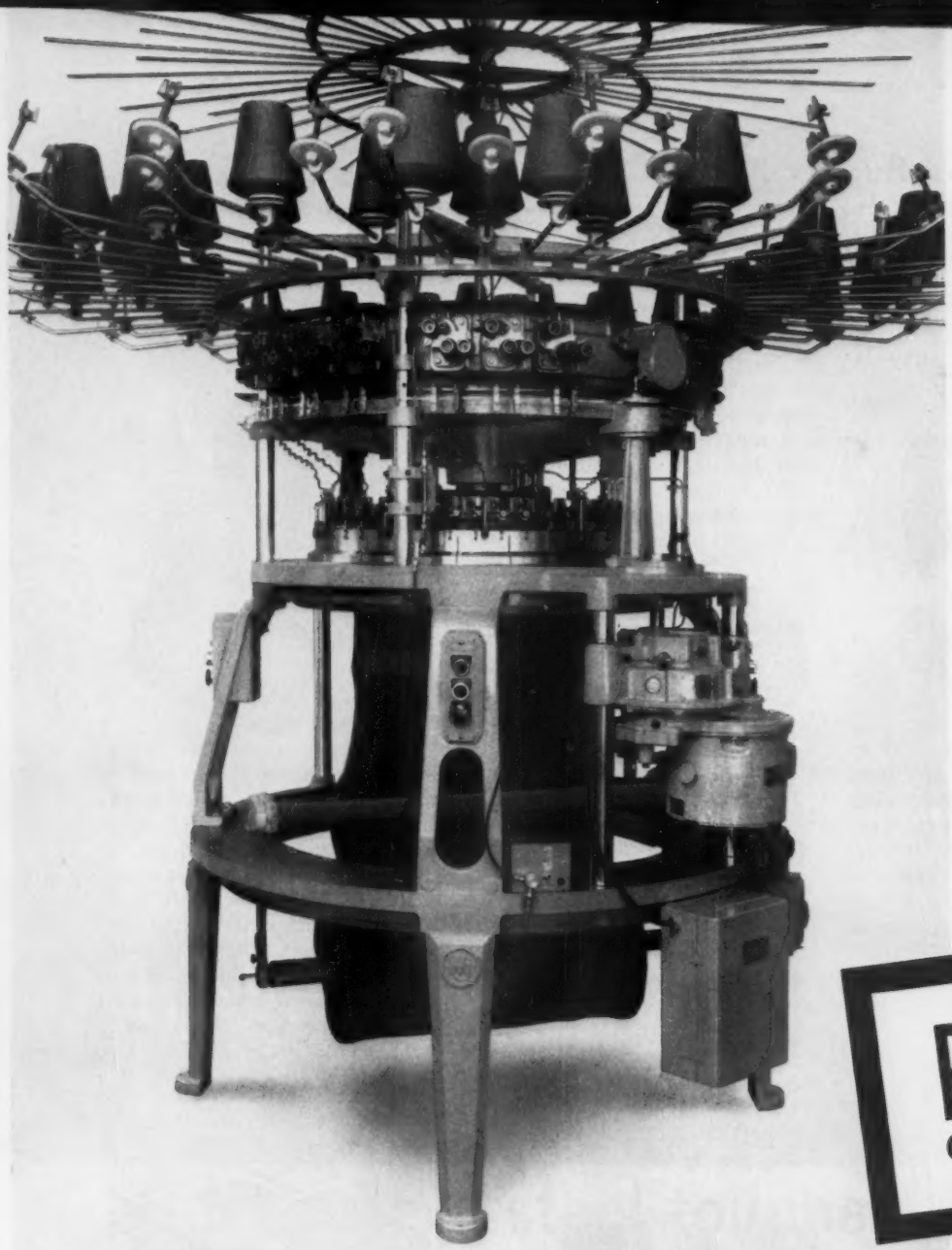


PBP-44
CHALLENGER

PRESENTING THE "CHALLENGER"

Added to Wildman Jacquard's fine family of knitting machines is the all new 30" diameter, 44 feed **"Challenger"**.

The **"Challenger"** is a high production yard goods circular knitting machine for the production of double pique fabrics. Its rugged, modern styled frame, together with a new heavy dial support stem, provides the rigidity so necessary for the high production of quality fabrics.

Rearrangement of the needles or dial sections (which are made interchangeable) enables the following fabrics to be produced: double pique, Swiss or French knit . . . single pique . . . eightlock . . . full rib . . . multicolor checks or block plaids . . . the various tuck effects . . . double jersey . . . French welt fabrics and stripes.

WILDMAN JACQUARD

WILDMAN JACQUARD CO. • 1210 STANBRIDGE ST. • NORRISTOWN, PENNA. • MANUFACTURERS OF HEMPHILL BANNER KNITTING MACHINES

A Subsidiary of Draper Corporation, Hopedale, Mass.

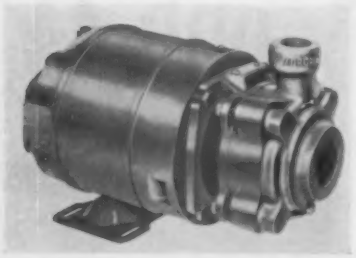
Manufacturers of the only circular knitting machines using a true Jacquard patterning mechanism

Equipment and Supply News

. . . *Begins on page 91*

For more information on any of these items, circle appropriate number on the Reader Service Card, next to the back cover.

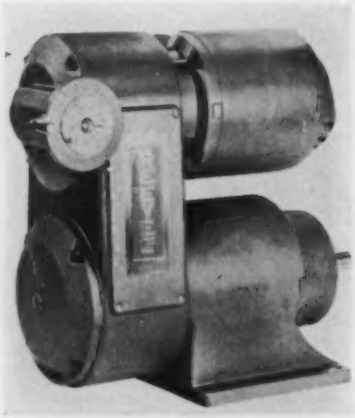
E-9 — Thickness gage accessory, called Cordinator, simplifies and speeds up yarn measurement. Gage works on all types of yarn or wire. Four yarns are placed and mounted side by side on this lightweight unit for quick evaluations. Scott Testers, Inc.



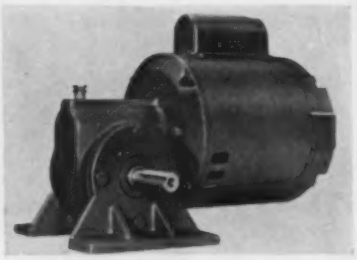
E-10—Centrifugal pump features a compact design for easy installation. Because the pump has a vertical center-line discharge, vapor locks are eliminated. And it's smooth running with low noise level. Heads 50 feet. Capacities go up to 400 gpm. Aurora Pump Div.

E-11—Brushing machine is designed for use on man-made fabrics. It gives the fabric a light to medium brushing. Working widths range from 40 to 72 inches. Unit operates at two speeds using a 3-hp. motor. A hand wheel adjusts the brushes. Franz Liedl.

E-12—Nip and crown tester spots trouble before it becomes serious. The tester makes an accurate and permanent record for rubber-covered rolls. It works on pressures from less than 50 pounds up to 1,500 pounds per linear inch. Raybestos-Manhattan, Inc.

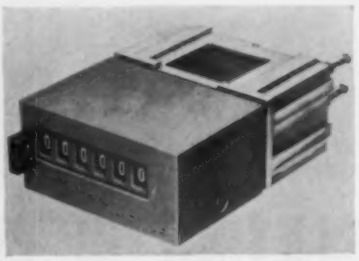


E-13—Variable speed drive runs at 25 to 2,630 rpm. with ratios up to 4 to 1. Unit comes in vertical, horizontal, and 45-degree assemblies in wall or ceiling mountings. Drive has 25 to 40 horsepower, with "C" or "Z" output shafts. Reliance Electric & Engineering Co.



E-14 — Right-angle gear motor comes in ⅛ to ⅓ horsepower. Designed for light weight the ¼-hp. unit weighs 26 pounds. This motor offers greater versatility because the output shaft is reversible. Mounting base is under the gear end. Units are available in drip proof, fan-cooled, and totally enclosed. Thirteen reduction gear ratios are offered. Reliance Electric & Engineering Co.

E-15—Floor-maintenance machine scrubs, picks up dirty solution, and squeegees the floor dry. Unit works on 12-v. batteries and cleans an 18-in. path. At this rate it cleans up to 6,000 square feet per hour. Vacuum-tank capacity is 6½ gallons. The clean water tank holds 5 gallons. A replaceable nylon pad (5x18 inches) operates at 3,400 rpm. The squeegee is 20 inches wide. Clarke Floor Machine Co.



E-16—Counter for all types of textile needs comes in six styles. (1) Type CA is a magnet or electric-impulse unit that turns the numbers on a mechanical wheel for each product counted. (2) Type CB is a predetermining counter. (3) Type CC is a time recorder. (4) Type CD is a hand-operated unit. (5) Type CE counts by stroke action. (6) Type CF is a revolution counter. Rowan Controller Co.

. . . *Turn to page 96*

Here where steel touches steel, Marathon Rings meet the challenge

Here, where surface finish is critical, where the traveler continually contacts the ring, Saco-Lowell **Marathon Rings** bring you a special, more effective answer. Delivering fine performance at low cost, these soundly-engineered rings give top dollar value.

The ring that's hard enough to resist wear has traditionally presented starting-up problems. Softer rings, or rings with a softer "shell," solve one problem but introduce others. High polish has drawbacks, too. The trapping of abrasive impurities, or "dross," is one. Another is the actual increase in coefficient of friction that results, strange as it may seem, from extreme smoothness.

What is Marathon's better answer? Hard steel with a matte-finish surface produced by a revolutionary specialized process involving no dross. Smooth enough to shorten break-in time, not enough to create resistance to the traveler. No need for a soft steel casing. And priced surprisingly low.

True, Marathon Rings don't glisten like the more expensive rings you may be using now. That's because they're made for just one purpose: to do a good, steady job in the most economical manner possible. Get in touch with your nearest Saco-Lowell representative soon. See the difference Marathon Rings can make. Like all Saco-Lowell products, they're **built for better performance... backed by better service!**

SACO-LOWELL SHOPS

REPLACEMENT PARTS DIVISION

EXECUTIVE OFFICES: DRAWER 2327, GREENVILLE, S. C.
SALES OFFICES: ATLANTA, GA.—805 PEACHTREE ST., N. E.
GREENVILLE, S. C.—P. O. Box 1698; CHARLOTTE, N. C.—P. O. Box 149;
GREENSBORO, N. C.—601 N. Elm St. Bldg.; SACO, MAINE—P. O. Box 230

CIRCLE 95 ON READER SERVICE CARD

Equipment and Supply News—Knitting Arts Show

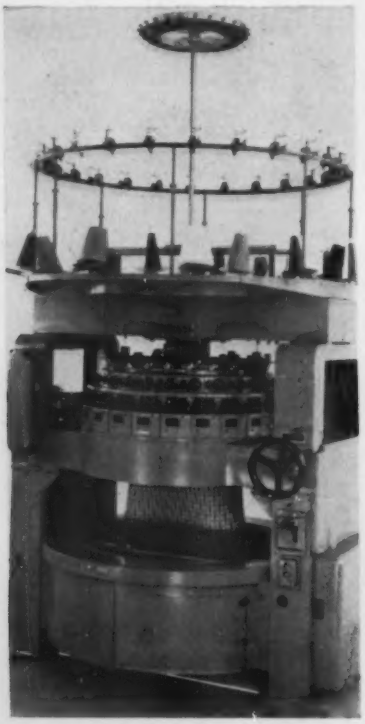
For more information on any of these items, circle appropriate number on the Reader Service Card, next to the back cover.

Now—Double Knit at 20 PPH

The PBP-44 challenger, designed by Wildman Jacquard Co., uses 44 feeds to knit up to 20 pounds of double pique material per hour. Unit has a 30-in.-dia. revolving cylinder and dial. The machine comes in various cuts up to 20x20 needles per inch.

Automatic adjustable lubrication feeds oil to the cylinder dial needles and dial hub. A built-in blower system keeps the needles, latches, and overhead area free of excess lint.

Operating speed is 20 rpm. Unit makes pique, eightlock, full rib, checks, block plaids, welt, and striped fabrics. The unit has four switches (one at each leg) with start, stop, and jog buttons. **(Circle E-17 on Reader Service Card)**

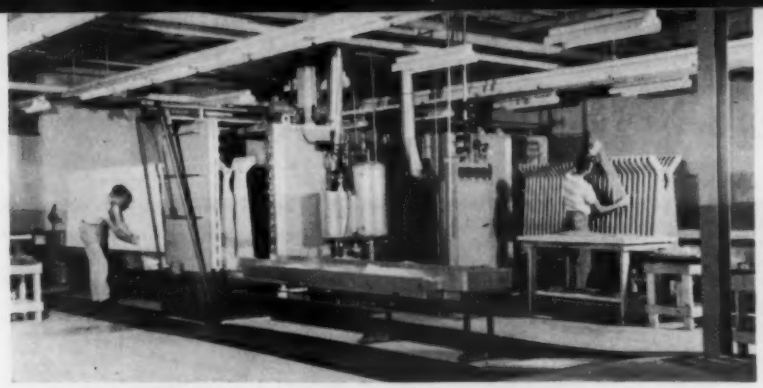


Jacquard Knits With 24 Feeds

A jacquard machine for circular double-knit fabrics, made by Dubied Machine Co., makes large nonspiral jacquard designs of variable area. This machine uses single-needle control in fine gages for these intricate patterns.

Special pattern wheels, one at each of 24 feeds, may be sensitive or nonsensitive to a pattern magazine as desired. Magazine is an endless metal tape. This knitting machine, Weavenit Model A-24, makes designs with repeats of up to 12 inches. **(Circle E-18 on Reader Service Card)**

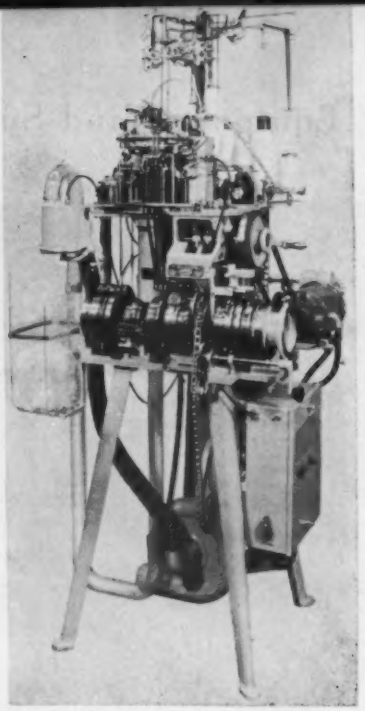
Here's **Installment 2** of TEXTILE WORLD'S report on the Knitting Arts Show in April. All items reported are new since the 1959 knitting show.

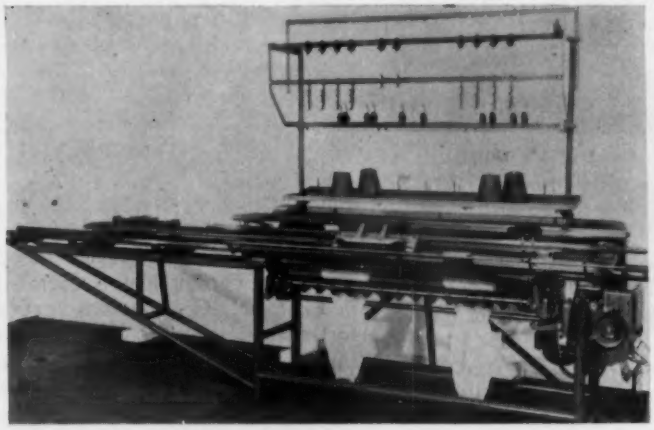


Dyeing Cycle—Seven Minutes

The dyeing and finishing cycle has been reduced to seven minutes on Turbo Machine Company's dye boarder. Now two operators can produce 160- to 170-doz. pairs of hosiery in 8 hours.

The dye boarder uses 120 forms and each operator strips and dresses 30 forms while the other 60 forms are in the process. The dye solution is pressure-sprayed onto the hosiery. Once dyeing time and temperature are established, shades can be matched accurately from lot to lot. **(Circle E-19 on Reader Service Card)**





Knits Two Fabrics at Once

This flat-knitting machine, developed by Dubied Machine Co. knits two separate fabrics or a single wide fabric. It is a double-lock high- and low-butt-needle machine with a widening device to introduce needles, one at a time, to both selvages.

One machine is 62 inches wide, has 12 needles per inch. It operates at 56 stitches per minute. The gage is changed by replacement of the needle beds and the racking wheel. **(Circle E-20 on Reader Service Card)**

More Styling With Two Feeds

This two-feed seamless hosiery machine, Reading Mark III by Textile Machine Works, combines high production with pattern versatility. Here are some of the capabilities—micromesh at either or both feeds, floated lace patterning, unlimited float and tuck, run-stop bands, gore heel, Y-heel, nude heel, gore toe, and circular gusset toe.

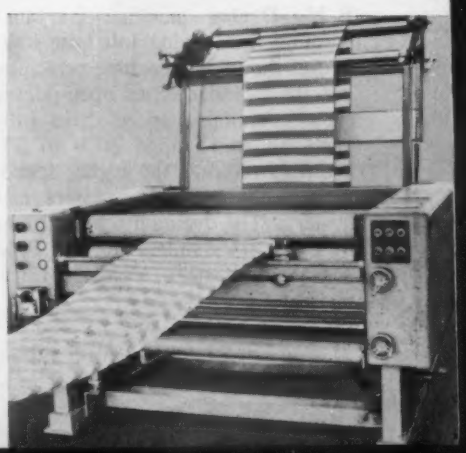
This machine features 25-step cylinder jacks, end trimming, two-trick drums, vacuum takedown, and automatic oiling. Cylinder speed is 210 rpm. in rundown, and 100 rpm. at yarn changes. Needle count is 400. Cylinder diameter is 3¾ inches. Production averages 2- to 2½-doz. pair for 8 hours. **(Circle E-22 on Reader Service Card)**

. . . Turn to page 98

Pad-Extractor for Knit Goods

A pad-extractor, designed by Turbo Machine Co., is used for compressive shrinkage, and for sizing, resins, and other finish applications. Roll pressures are adjustable up to two tons.

Both padding and extractions are combined in one machine. Fabrics can be dampened or completely immersed as required. A special attachment is available for spraying the fabric prior to padding. Speed is 60 ypm. for fabrics that are quickly impregnated, or speed can be reduced for those fabrics that do not accept finish applications readily. **(Circle E-21 on Reader Service Card)**



Equipment and Supply News . . . Knitting Arts Show

. . . *Begins on page 96*

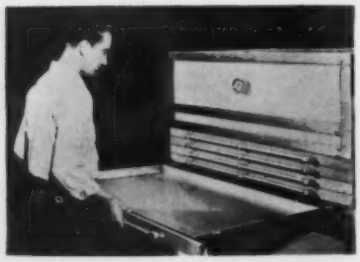
For more information on any of these items, circle appropriate number on the Reader Service Card, next to the back cover.

E-23—Rotary dyeing machine for hosiery and sweaters eliminates all gears and bearings within the vessel. Capacities range from 4 to 250 pounds per batch. Machine's overflow design makes it possible to flush off all scum and dirt from the surface of the liquor. The unit is equipped with a quick-opening draw valve, water-inlet connection, dye-feed funnel, draw-off spigot, thermometer, and water gage. Steam enters through a perforated pipe to give uniform heating. Speed is 6 rpm. for dyeing and 30 rpm. for washing. Turbo Machine Co.

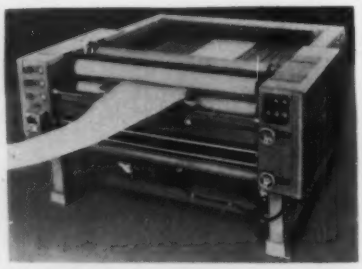
E-24—Tension device, called Solis, is automatic, air-operated, and self-contained. It maintains uniform tension at all speeds and does not increase machine height. It has a stocking-inverting mechanism and nylon retainer on a transparent receptacle. Roy D. Faigenbaum.

E-25—Dyeing machine combines washing and dyeing into one unit. It uses the rotary-machine principle, but the cylinder is an open-pocket type. Available speed drive provides an rpm. range of 6 to 25. Washing requires the higher speed. Unit works well on sweaters and hosiery. The dyeing machine comes in Type 304 stainless steel or Type 316 stainless steel. Venango Engineering Co.

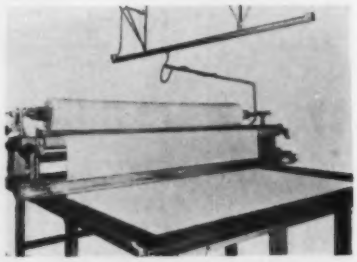
E-26—Flat knitting machine, called Stoll Model UFD, is a double-system knitting unit with high- and low-butt needles and push jacks. Unit has an automatic stitch transfer attachment, eight-yarn slide bars, and eight-yarn carriers. Knitting Machine & Supply Co., Inc.



E-27—Tray dryer handles up to 1,000-doz. ladies hosiery per 8-hr. day. Unit has six drawers that open full length on rails and slides. Each drawer holds 4-doz. pair of hosiery. Drying temperature is supplied by steam. Paramount Textile Machinery Co.

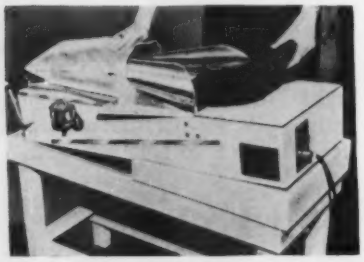


E-28—Spreader-steamer for tubular-knit fabrics has mechanism that overfeeds fabric to steaming zone for maximum shrinkage. Avoidance of pulling fabric through steaming zone eliminates common problems. Pressure rolls can be covered with a variety of materials to impart new characteristics to the fabric. Tubular fabrics up to 64 inches can be processed at up to 60 ypm. with full control. Turbo Machine Co.



E-29—Spreader is tensionless, eliminates stretch and distortion on cutting table. Electric knife permits automatic slitting across width of fabric. Model W Champion (photo) is available on specification for open-rolled tricot fabrics up to 120 inches wide. It spreads goods face-to-face or face one way. Unit is manually operated, can be run by one worker, and has no turntable. Cutting Room Appliances Corp.

E-30—Tumbler control for drying avoids overheating with a ¾-in. solenoid steam valve. Device is used on 110-v. current and is enclosed in a cabinet. Operator sets control for maximum temperature required by the fabric and for drying cycle desired. Then a signal light or buzzer alerts the operator at the end of the cycle or a relay shuts off the motor to stop the machine. Henrici Laundry Machine Co.



E-31 — Automatic bag packager combined with an automatic bag sealer eliminates one operator for bagging and sealing. This combination can be used on only one product or intermittently on several products as desired. Errich International Corp.

. . . *Turn to page 100*

PUBLICO
61.4 TW

MANUFACTURING

WINDING MACHINERY

Allows to make direct from grey or dyed cakes or bobbins straight or pineapple edged packages for weaving and knitting.

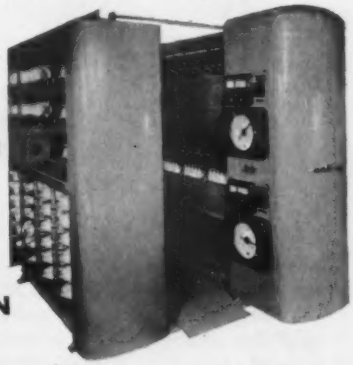
- **M TYPE** - for synthetic crimped and bulky yarns.
- **55 TYPE** for other textiles.
- **5 B AND 5 C TYPE** for coarse count yarns and cabled yarns for tyres.

TWISTING MACHINERY

- **AR. 4 TYPE** Assembler-Twister for crimped and twisted wool yarns special cabled yarns (sewing thread, fishing net yarns..)
- **ARC TYPE** spinning plant Ring Twister for extruded yarns.
- **ARU TYPE** double deck combined Ring-Twister which allows with single operation to make cabled yarns by twisting and plying simultaneously elementary yarns.

TEXTURIZED YARNS MACHINES

- **FT TYPE** and subsequent machines for synthetic yarns.
- **FTF TYPE** machine for bulky synthetic yarns according to a single process.



BEAMING PREPARATION MACHINERY

- **ER TYPE** Multicylinders Slasher for all textiles.
- **OR TYPE** high efficiency sectional warper with removable drums.
- **CR TYPE** magazine or truck creel.

MACHINERY SOLD THROUGH AGENCY BY
WHITIN MACHINE WORKS
MASS. WHITINSVILLE U.S.A.

Equipment and Supply News . . . Knitting Arts Show

. . . *Begins on page 96*

For more information on any of these items, circle appropriate number on the Reader Service Card, next to the back cover.

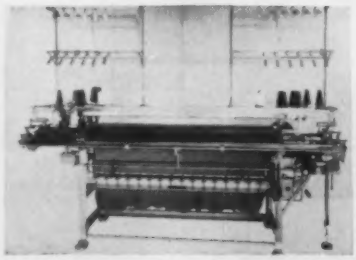
E-32—Contour seaming unit works on hosiery toes in place of looping. Unit comes in three types: Merrow, Model M-4D-45; Singer, Model 246SV12; and Union Special, Model 39500AE. Tied bundles can be processed without being untied. Paramount Textile Machinery Co.

E-33—Automatic bag sealer is a portable sealing machine for polyethylene bags. It occupies only 6 square feet. Features: quick size changeover with jaws closing 40 times a minute. Unit seals bags up to 7 inches wide and 5 to 12 inches long. Errich International Corp.

E-34—Dyeing machine, with paddle wheel, dyes and processes knitted outerwear in strip and finished form. Machine handles natural, man-made, and blends of both fibers. It also handles hosiery, tapes, ribbons, and rugs. Holds 2 to 850 pounds. Klauder Weldon Giles Machine Co.

E-35—Skein-dyeing machine for narrow fabrics holds 100 to 500 pounds of goods. Both natural and man-made fibers are handled. Skeins are suspended between stainless-steel dye sticks. Dyeing is done in relaxed condition. Klauder Weldon Giles Machine Co.

E-36—Flat-knitting machine, 63 inches wide, 3 to 14 cut, complete with 12 carriers, has special circular- and cardinal-cam assembly that permits all elementary stitches. There's automatic passage from 2/2 rib borders to 1/1 rib. Mac M. Rothkopf & Co., Inc.



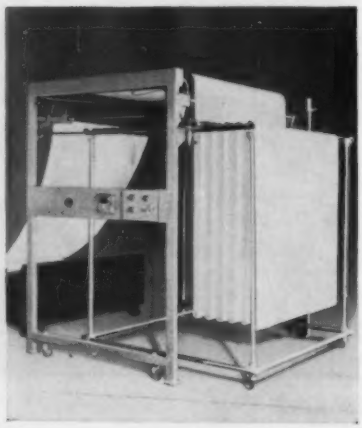
E-37—Flat-power machine built in Spain makes all changes in color and stitches at 19 courses per minute. Model H-L-J has high- and low-push jacks in front and back beds for increased pattern possibilities and combinations. Joseph Kopelowitz, Inc.

E-38—Automatic winder has automatic pin-tray attachment, quill-depositing attachment with gripping device, or boxing arrangement. Unit has electric yardage counter, tail-cutting device, and yarn layer counter for diameter control. Spindle speeds: up to 3,500 rpm. for cross winding, up to 6,000 rpm. for parallel winding. Doubling attachment for up to four ends is available. Atkinson, Haserick & Co., Inc.

E-39—Double-jersey machine produces plain woolen double-knitted fabrics. Jacquard patterns are made in two, three, or four colors with plain back, twill, or double twill. Relief fabrics are fine-rib, interlock, overknitted, and jacquard. Mac M. Rothkopf & Co., Inc.

E-40—Tricot machine, Super Rapid K-2, has single-crankshaft drive, with roller bearings throughout. Bearings require lubrication once a year. Oil in sealed crankcase is changed every three years. Ratios between warps are maintained by a gear system to eliminate slippage. Speed is 930 courses per minute. Width is 168 inches. Gage is 28. Machine is effective on Dacron. Mayer Textile Machine Corp.

E-41—V-bed machine in 2½- and 3-cut models with automatic single system makes coarse-gage rib trims and bulky sweater blanks. Needle-bed widths are 66, 68, 72, and 74 inches. Machine makes garment-section-length adjustments. Queens Machine Corp.



E-42—Automatic festooner for high-pile fabrics eliminates hand framing. Machine drapes fabric over a festooning truck in even folds and shuts off automatically when the truck is full. As each fold is completed, an indexing mechanism moves the truck forward to accept the next fold. Truck holds 60 yards of 64-in.-wide fabric. Speed of operation is adjusted to speed of fabric delivery. Turbo Machine Co.

E-43—Electronic-pairing machine, Pair-O-Matic, for pairing and computing seamless and full-fashioned hosiery increases production 50%. Operator measures hosiery length and gently presses a button at end of hosiery. Signal flashes to show one of four platforms where stocking is placed according to length. Second signal flashes when each platform contains 1-doz. stockings. International Textile Machine Co.

. . . *Turn to page 102*

WHITIN HAS A WAY WITH TWISTERS

...in Novelty Yarns

KING SIZED packages mean KING SIZED savings!

King-sized packages made on a Whitin Pacemaker Twister carry up to four times as much Novelty Yarn as those on an average twister.

These giant packages — the result of combining the productive capacity of the Pacemaker Model P Twister with the flexibility of the Type C1 Novelty Yarn Attachment, make possible king-sized savings, too — savings such as: a major reduction in knots; sizeable reductions in doffing and maintenance time; and greater production per square foot of floor space.

The Pacemaker Model P is a competitive, high speed, skillfully-built Twister capable of producing, with little or no loss in operating speed, bobbins of 11" traverse and up to 5" in diameter, using 5½" diameter rings.

The famous Whitin Type C1 Novelty Yarn Attachment already has an established reputation for excellent performance based on its precision, its simplicity and its versatility.

FEATURES:

- Fewer knots
- Reduces doffing time
- Reduces maintenance time
- Greater production per square foot of floor space
- High-speed operation
- Duplex Splash Yarn and Rocker Motions — optional

In bringing together this unusual cost-cutting combination, Whitin effectively meets today's increasing need for large knotless packages in the heavy fabric field — for products such as domestic upholsteries, automobile fabrics, rug yarns and draperies.

See your nearest Whitin representative for details.

WHITIN MACHINE WORKS

WHITINSVILLE • MASSACHUSETTS

CHARLOTTE, N. C. GREENSBORO, N. C. ATLANTA, GA. SPARTANBURG, S. C. DEXTER, ME.

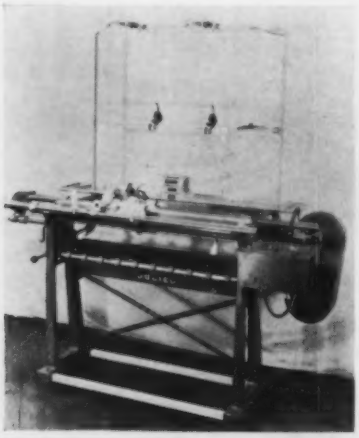
The best way to better yarns

Equipment and Supply News . . . Knitting Arts Show

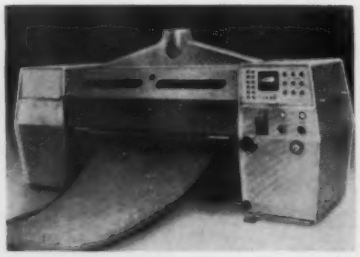
. . . *Begins on page 96*

For more information on any of these items, circle appropriate number on the Reader Service Card, next to the back cover.

E-44—Die cutter handles up to 36 plies in one cut. The arm pushes aside to make fabric placement easy. Twin buttons required to operate unit make for operator safety. Arm returns automatically to the top position. Montrose Supply & Equipment Co.

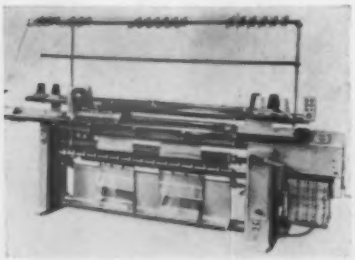


E-47—Power knitting of a variety of fabrics is now possible on a hand-knitting machine. Model NHF-2 has high- and low-butt needles and combined tubular and cardigan cams. Two yarn carriers are on single front and rear beds. Full-fashioned garments are made without bulky seams that result in cut and sewn garments. In most cases labor cost is absorbed by the yarn saved. Dubied Machinery Co.



E-49—Electro-finisher for high-pile fabrics, wools, and wool blends gives just a hint of a nap or deep lush surface. Push-button controls ease the operation. Pyrometric controller, with six-station scanning device, constantly records and maintains cylinder temperature every 5 seconds from 100 to 500 F. Reversing switch permits fabric to be fed from either side of the machine. Turbo Machine Co.

E-50 Warp-yarn inspector provides a quantitative analysis of yarn defects. It is preset to detect defects of any length or width. Unit operates on 110 or 220 v., a.c., 50 or 60 cycles. One unit will serve several Warp Yarn Monitors. Fabronics Corp.



E-45—Flat-bed knitter features individual needle and jack selection. All high- and low-butt needles and jacks can selectively be put in or out of action. This double lock-transfer unit, called Schaffhausen DOFU, is 63 inches wide. Robert Reiner, Inc.

E-48—New washer-extractor, in 29-min. cycle, washes, rinses, and extracts 50-lb. load, ready for ironing or drying. Operation is automatic except for addition of washing supplies on signal. Easy to install in 45x42-in. space. American Laundry Machine Industries.

E-46—Automatic printer and applicator comes in two designs. Sensomatic applies pressure-sensitive labels to the product at rate of 180 labels per minute. Pouchamatic applies pressure-sensitive labels to film bags, folded boxes, etc. Monarch Marking System Co.

E-51—Brushing machine raises a long fleecy nap on wool and worsted fibers, on natural fibers such as wool, worsted, and mohair, and on man-made fibers such as Orlon, Dacron, nylon, and blends. It brushes cloth in the roll, individual hosiery, and gloves. Features: 60-in. brush roller, self-contained dust collector with large lint bag, and variable-speed brushing by handwheel control. Ainslie Knitting Machine Co.

. . . *Turn to page 106*

"No more tight ends in our warps"

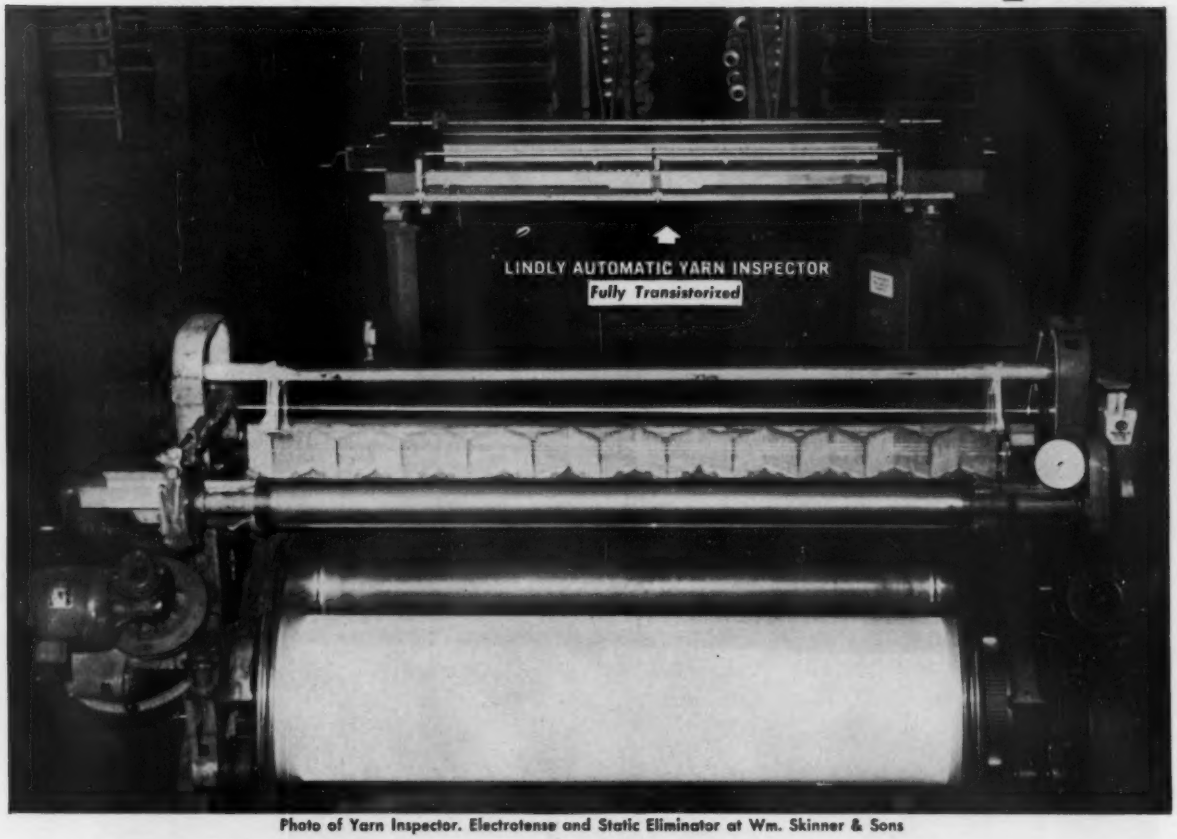


Photo of Yarn Inspector, Electrotense and Static Eliminator at Wm. Skinner & Sons

The LINDLY Electronic Triumvirate Gets the Credit

YARN INSPECTOR – ELECTROTENSE – STATIC ELIMINATOR

Closeup of Electrotense in creel.

Lance Static Eliminator — not visible in installation photo.

When we asked William Skinner & Sons, Holyoke, Mass. for a report on their installation of a Lindly Automatic Warp Yarn Inspector, the Lindy Electrotense in their creel and a Lindy Static Eliminator, their answer was prompt and enthusiastic: "No more tight ends in our warps."

However, when we asked them to go back temporarily to warping without the Lindly controls, so we could get some comparative "before" data, they flatly refused. "Why should we go through that again, when we don't have to?" they asked, and we can't blame them.

Since Skinner didn't need comparative data to prove the value of the Lindly Electronic Triumvirate, we doubt if you would either. So why not try an installation? Here's what the triumvirate is and does:

THE LINDLY AUTOMATIC YARN INSPECTOR is a high-speed, ultra sensitive photo-electric instrument for detecting yarn defects in warps, such as broken filaments, strip-backs and fluff balls. It can be made to operate a counter, a signalling device, or to actuate a machine stop switch — singly or in combination for any degree of imperfection.

THE LINDLY ELECTROTENSE for warp creels, winders, twisters, knitting machines, etc. provides completely uniform tension for any number of ends and the tension for all ends can be varied by turning only one dial. It consists of two conventional discs with an electromagnetic coil beneath. The lower disc is of non-magnetic brass, while the upper disc is of magnetic iron. When the coil is energized through a central electronic control, the upper disc is attracted downward, pressing the yarn between it and the lower disc in any degree desired. The pressure is pulsating, which prevents backup of twist and helps keep the tension discs clean and free turning.

LANCE STATIC ELIMINATOR, made in a variety of models, has a textile application wherever static electricity is a problem. It carries a high voltage discharge from pointed electrodes into the air, causing the fibre to be surrounded by ionized air, which serves to discharge the static electricity accumulated all around the surface of the fibre. Whereas the voltage is high enough to ionize effectively the air, it cannot harm the operator, who accidentally comes in contact with the electrodes.

FOSTER MACHINE COMPANY

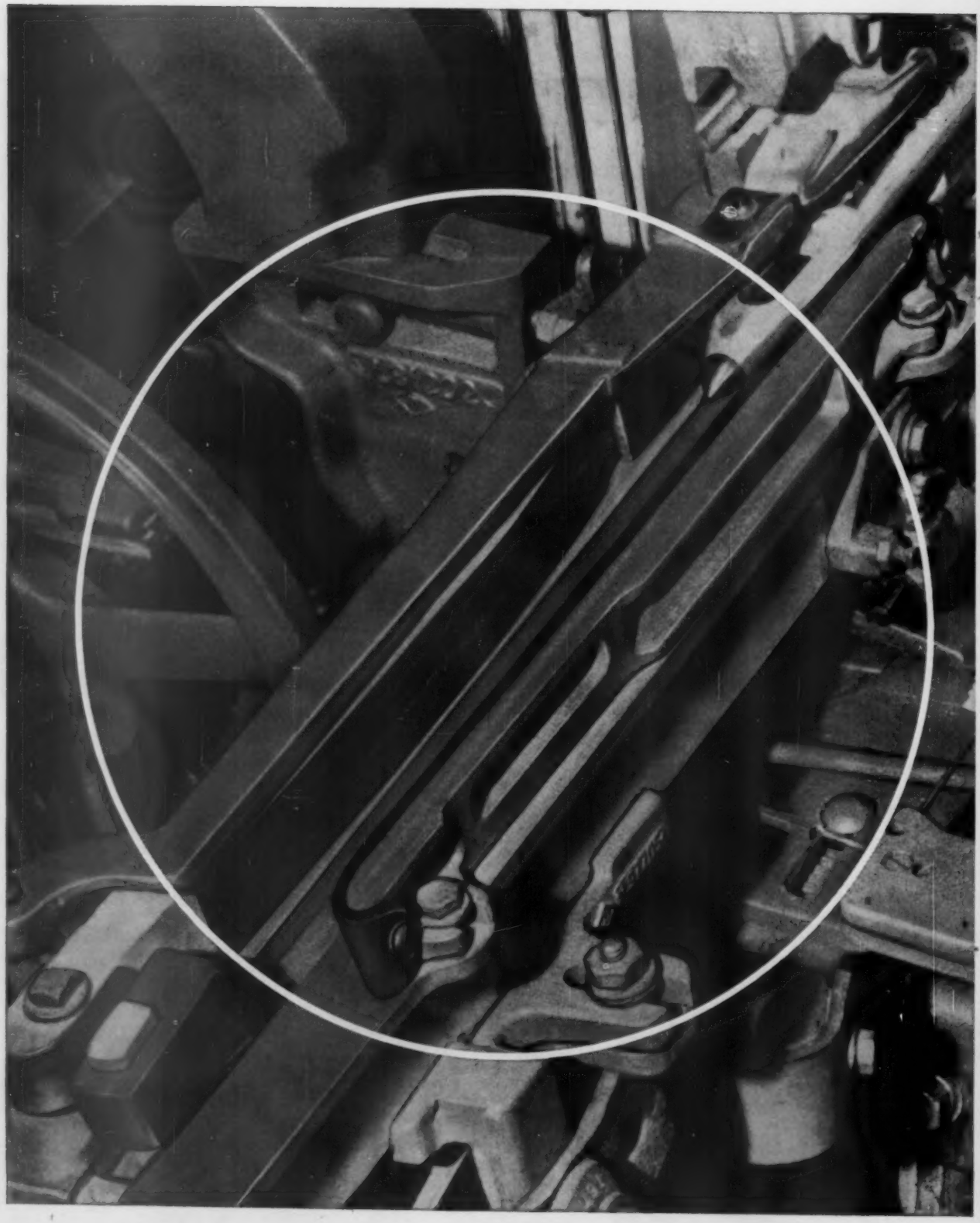
ELECTRONIC SALES DIVISION, DEPARTMENT TW-7

Westfield, Massachusetts, U.S.A.

Southern Office, Johnston Bldg., Charlotte, N. C.

468-0

CIRCLE 103 ON READER SERVICE CARD 103



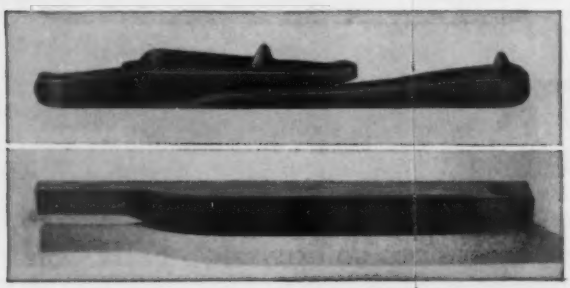
This new Armstrong loom binder covering cuts costly downtime

CN-889, Armstrong's new synthetic covering for loom binders and box fronts can help make your weave room more profitable. CN-889 needs less break-in time and requires less resetting than natural materials. And it wears longer, even on looms where heavy plastic shuttles are used. This means that your looms will be shut down fewer times—and for shorter periods—for adjustment and replacement of binder and box front coverings.

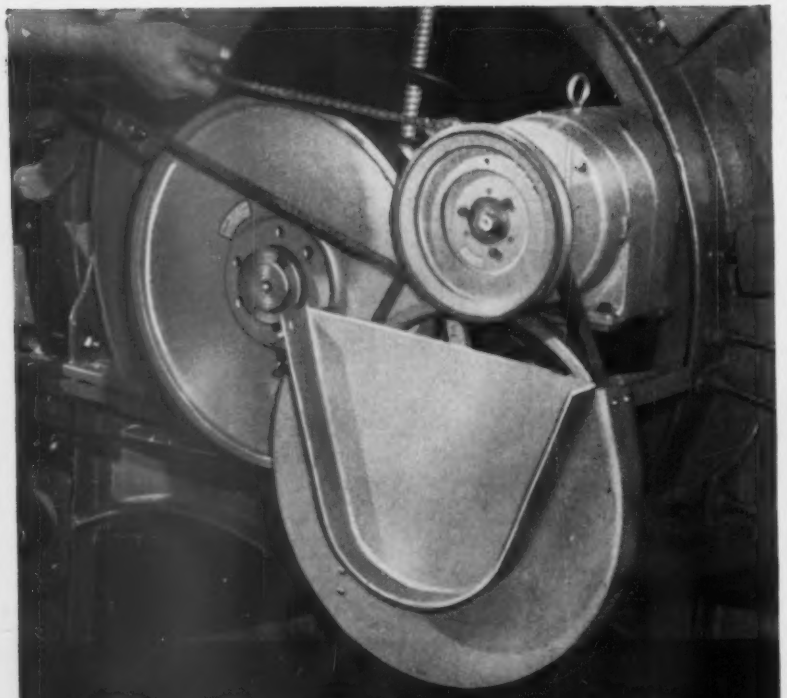
CN-889 insures better performance because of its inherent stability. It is unaffected by variations in temperature and humidity that impair the performance of natural materials.

CN-889 gives you all these operating advantages, yet costs no more than other loom binder materials. Interested? Talk to your Armstrong man or write Armstrong Cork Company, 6907 Dauphin Street, Lancaster, Pennsylvania.

Armstrong LOOM SUPPLIES



CIRCLE 105 ON READER SERVICE CARD



Wood's offers you all the advantages of individual card drives without clutches or gear reducers to adjust or maintain

Wood's Card Drive is the textile industry's newest, yet most widely specified drive. This simple, sturdy, smooth-starting unit not only eliminates cumbersome flat belt pulley and lineshaft construction, and accompanying hazards and power losses, but it also has no clutches or gear reducers to adjust, maintain or lubricate.

Improved product quality and quantity are assured through elimination of belt slip and better control of operating speeds as well as reduction of static and the amount of lint and dirt in the atmosphere.

Important, too, is the fact that Wood's Card Drive not only costs less to maintain, but it costs less to buy than any other individual card drive available.

Write, Wire or Phone for Details and your copy of Bulletin 6100

Wood's

T. B. WOOD'S SONS COMPANY
CHAMBERSBURG, PENNSYLVANIA

ATLANTA • CAMBRIDGE • CHICAGO • CLEVELAND • DALLAS

Equipment & Supply News
Knitting Arts Show

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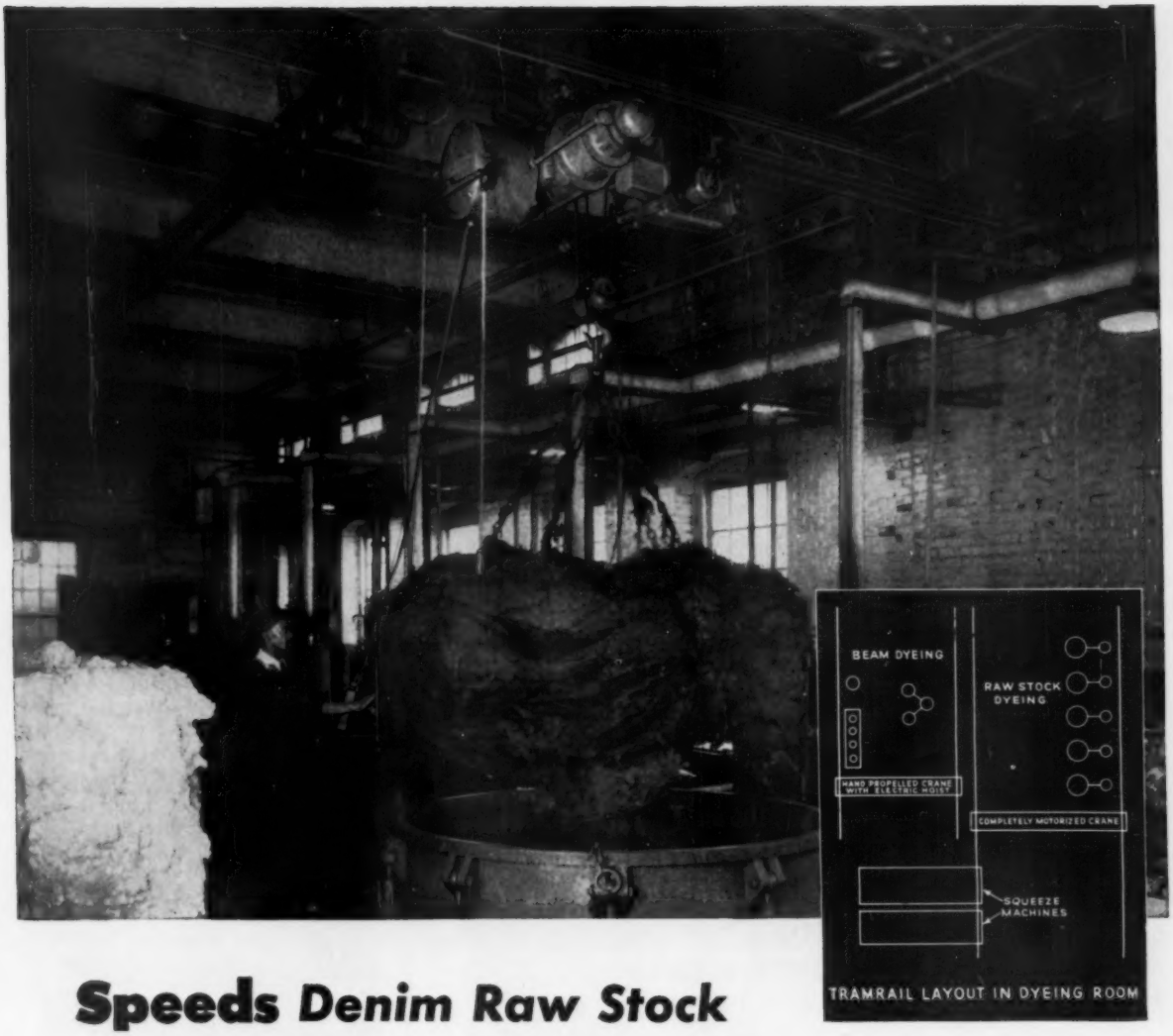
For more information on any of these items, circle appropriate number on the Reader Service Card, next to the back cover.

E-52—Die-cutting machine, called Dytraulic, is designed for knitwear production—extra heavy duty, minimum maintenance, easy positioning, single- or multiple-lay cutting. Model D (photo) is available in hydraulic or mechanical design, with 18x38-, 20x40-, or 30x36-in. cutting-block areas. Model DT is a twin electro-hydraulic unit for large sections and single- or multiple-lay cutting. Stroke: ½ to 2¾ inches. Machine has overlapping arms, 20x36 inches each, with 30x60- and 30x72-in. cutting-block areas. Herman Schwabe, Inc.

E-53—Flat-bed automatic machine for a large variety of patterns is actuated by a steel-card device that turns the cards forward and backward. Electric facilities are on the left-hand side of the machine in a totally enclosed cover. Regent Knitting Machinery Corp.

E-54—Narrow-fabric loom makes ribbons, tapes, elastic web, plastic web, or government webbing at 300 ppm. Unit has warp-stop motion and a predetermined pick counter. With this counter the weaver changes all quills at one time. A signed box, mounted on the front arch, shows warp breaks by loom section and stops for quill changes. Standard loom widths are 6 and 9 feet. Fletcher Works.

. . . Turn to page 108



Speeds Denim Raw Stock Dyeing and Handling

A THREE-TON completely motorized Cleveland Tramrail Crane was installed in the Dye Room of a leading North Carolina denim mill. This serves five 1500-pound dyeing machines. It speeds the handling of heavy kier covers and bulky wet cotton charges.

The hard manual work formerly required has been eliminated. Time lost in loading and unloading the dyeing machines is greatly reduced and consequently they can be in dyeing service a greater part of the time.

Because of satisfaction with the first crane, another crane was purchased and installed in an adjacent bay to serve a two-kier Gaston County dyeing machine for beam dyeing. This is a hand-propelled crane with electric hoist, that greatly facilitates the handling of beams in and out of the dyeing machines, extractor and dryer.

Write for free Engineering and Application Booklet No. 2008. Packed with valuable information.

CLEVELAND TRAMRAIL

Overhead Materials Handling Equipment

CLEVELAND TRAMRAIL DIVISION • THE CLEVELAND CRANE & ENGINEERING CO. • 8470 E. 287 ST. • WICKLIFFE, OHIO

The Key To
Knit Fashion Excitement...
Worsted Yarns
Package-Dyed by GLOBE
Double knits—Italian knits—ratiné knits—raschel knits, jerseys, etc., hit a new high in interest and effect—when you rely on worsted yarns package-dyed by Globe. Count on Globe to faithfully reproduce the most subtle of color conceptions—lot after lot.
Globe does package dyeing on tubes, skein and warp dyeing, warp bleaching and sizing.
Yarns processed include cotton, worsted, linen, blend and novelty yarns, and all synthetics including Arnel®, Creslan®, Orlon® (Turbo, Hi-Bulk and Sayelle) and Zefran®.
Globe Dye Works
Since 1865
4500 WORTH STREET
PHILADELPHIA 24, PA.
JEfferson 5-3301

Equipment & Supply News

Knitting Arts Show

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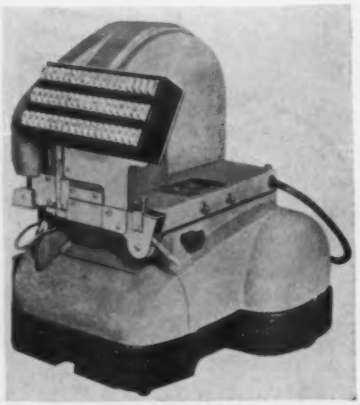


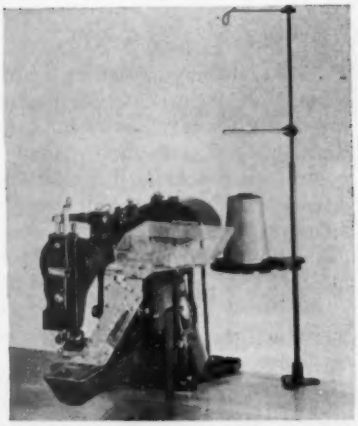
E-55—Pinning machine prints the ticket and attaches it to the garment in one operation. This unit goes as fast as the operator can work. She sets the type from the type dispenser (photo) for each different style of garment being pinned. Dennison Mfg. Co.

E-56—Two bar tricot, 170 inches wide, features high speed with single steel-frame construction. This machine has a built-in oiling system —all vital parts are self-lubricated. Yarn tension and warp let-off are electrically controlled. Robert Reiner, Inc.

E-57—Pleating machine has automatic controls, uniform heat, variable speed, automatic spacing, and quick change to side, box, reverse, or combination pleats. Unit handles variety of man-made and natural fibers. Sizes: 64, 60, 48, and 36 inches. Chandler Machine Co.

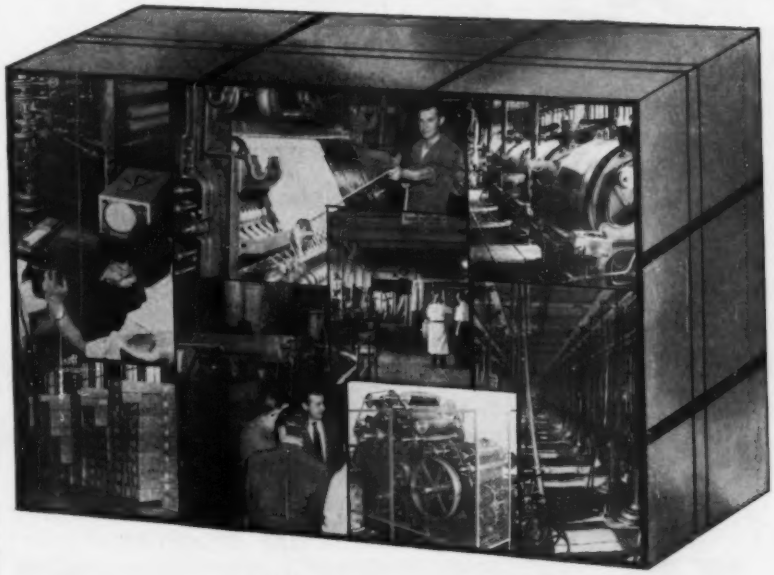
For more information on any of these items, circle appropriate number on the Reader Service Card, next to the back cover.

E-58 — Washer-extractor replaces three separate conventional units: washer, extractor, and conditioning tumbler. Expensive overhead material-handling system and loading devices are also eliminated. One man now does the work of two. Injector operation is automatic from start to finish. Over-all time required is about the same as for conventional washing. Cummings-Landau Laundry Machinery Co., Inc.



E-59—Button feeder for automatic feeding of two- and four-hole buttons can be used on conventional-type sewing machines. This So-Thru feeder is designed for automation. A second button-feeder model, Speed Feed (photo), fits all popular machines. Rochester Button Co.

"coordinated production" is a "PACKAGE" PLAN



ONE AIM (TO SERVE)

In D & F carding machines, "Coordinated Production" means a better return on your investment through improved efficiency, higher product quality and greater yield. It applies to machinery (new or already installed), plus accessories and expendable supplies (condenser aprons and tapes, card clothing, metallic wire and spare parts). Standard or special, depending on your requirements, these items can all be designed, produced and included for you by us — when and as needed.

ONE RESPONSIBILITY (TO FOLLOW-THRU)

The sole responsibility for the complete package can be Davis & Furber's, backed by over a century of experience. Supported by D & F survey and service, in-the-mill analysis, D & F Engineers, Technicians and Erectors, you get the kind of satisfaction that only our aim (as stated above) can bring. Get the D & F "Coordinated Production" Package Plan because it is the insured way of achieving profitable performance throughout. Ask for full information.

ONE SOURCE (TO SUPPLY)

For satisfaction, investigate these products:

D & F Standard Cards	D & F Metallic Wire
D & F Special Cards	D & F In-The-Mill Technical Survey
D & F Card Clothing	D & F Preventive Maintenance Survey
D & F Condenser Aprons	D & F Modernization Plan
D & F Condenser Tapes	D & F Spare Parts Inventory

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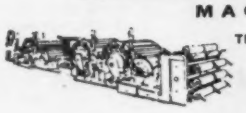
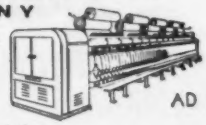


TEXTILE MACHINERY DESIGNERS AND MANUFACTURERS
North Andover, Mass.
Charlotte, North Carolina



AD 15-2.

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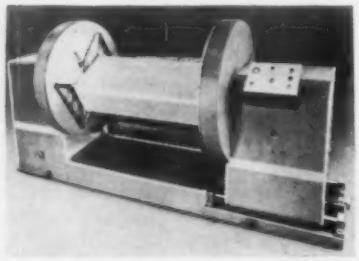
Equipment & Supply News
Knitting Arts Show

. . . *Begins on page 96*

For more information on any of these items, circle appropriate number on the Reader Service Card, next to the back cover.

E-60—Underwear machine with jacquard for rib patterns is made in diameters of 11 and 19 inches. It's particularly adaptable to knitting women's underwear of cotton, wool, rayon, and stretch yarns in a variety of designs. Production is 16 to 18 ypm. Mac M. Rothkopf & Co., Inc.



E-61—Automatic framing machine used for all types of pile fabrics has solved the problem of transporting them. Fabrics of 50 or 60 yards are automatically fastened to disposal frames. Machine runs at 20 ypm and shuts off automatically. Turbo Machine Co.

E-62 — Hosiery-measuring instrument, Volumet, with a heel-measuring device for seamless or full-fashioned hosiery gives more complete control over stocking irregularities. After operator records foot size, she measures heel length from the gore to the bottom edge of the reinforcement. Exact foot size is pointed out by an arrow stamped on a rod attached to the telescoping toe. Joseph C. Cobert Associates.

E-63—Tricot warper for beams 21x 21 inches up to 30x50 inches (and any size in between) runs at 650 ypm. Unit takes two narrow or one wide beam. Drive is d.c. motor with a.c. rectifier for variable speed. Result: constant yarn tension. Mayer Textile Machine Corp.

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Yes . . . you pay more for Carter's "Supreme" plated traveler, but you get profit-performance that justifies the name. Problems of rust—nep control—excessive traveler changes and down time . . . are met and solved with the cost-cutting "Supreme" traveler. Pioneered by our own metallurgical laboratories . . . incorporating all of the traditional CARTER craftsmanship and quality —the "Supreme" traveler makes a material contribution to the production of finer, stronger yarn—made and sold . . . *profitably!*

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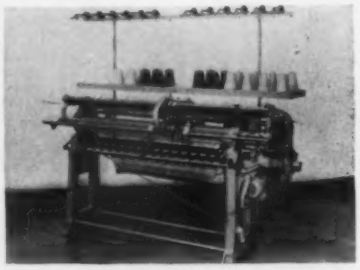
Equipment and Supply News

Knitting Arts Show

. . . *Begins on page 96*



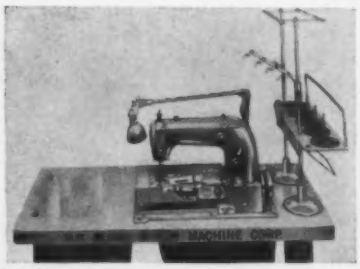
E-64—V-bed machine for flat-power knitting outerwear, collars, and trimmings takes up to 380 chain lengths for long garments and pattern repeats. Changes from 2x2 rib to 1x1 rib are automatic. Eight electric-stop motions control the machine. Stonehill Knitting Machines Corp.

E-65 — Hosiery-boarding machine fired by steam, electricity, or gas, combines continuous automatic-form movement with fully automatic stripping and accumulation of socks. Final production is increased 40 to 50% over hand boarding. Average operator boards 220- to 240-doz. pairs of socks in 8 hours. Socks are boarded wet or dry. Preboarding production increased 100%. International Textile Machine Co.

E-66—Circular knitting machine produces cutout pieces of fabric in interlock pattern with a reinforcing 1 to 1 fine-rib border and a separating row (drawing thread). It's for knitting women's and men's sweaters. Machine has 30-in. diameter. Mac M. Rothkopf & Co., Inc.

E-67—Double-jersey jacquard machine has a 33-in. diameter, 48 feed, and cuts up to 18 needles per inch. Pattern-wheel multiplier permits knitting in two, three, or four colors straight across the pattern without a spiral effect. Jet Age Knitwear Machinery Corp.

E-68—Full-fashioned sweater machine continuously changes from rib to jersey knitting with separating draw string and rack start in a single operation. Machine can be equipped to produce intarsia, lace, and pique, all with automatic operation. Jet Age Knitwear Machinery Corp.



E-69—Stitch machine for attaching selvaged ribs and strippings on necks, armholes, and waists of sweaters offers linking quality at 4,000 stitches per minute. Machine, Rimoldi Type 60/1/L, is simple to operate. Lubrication is automatic. U. S. Blind Stitch Machine Corp.

E-70—Steam-heated laundry tumbler with self-cleaning screen for lint removal has adjustable timer control with signal and solenoid-actuated cooling damper. The operator only has to adjust damper to hot (or any intermediate) position and set the timer for the required time. When the load is dried, the machine signals operator that load is ready to be removed. Cummings-Landau Laundry Machinery Co.

E-71 — Hosiery-mending machine has instantaneous reversible action of a mending blade controlled by a single foot switch. Tool has elliptical path so that mending cut does not have to be turned. Machine increases production 20%. Stanford Marley Distributing Co.

For more information on any of these items, circle appropriate number on the Reader Service Card, next to the back cover.

E-72—Overlock machine, Rimoldi Class 27, has variation of stitch length from 0 to 5 mm. obtained with a pushbutton in graduations of 1/10 mm. Cutter operates automatically; lower knife is pressure-controlled; upper is automatic. U. S. Blind Stitch Machine Corp.

E-73—Electric table for drying hosiery comes in 12- or 24-form model. Heat-control unit handles 12 forms. Optional dual control provides adjustment for six forms by single control. Table has self-leveling adjustment up to 6 inches. Paramount Textile Machinery Co.

E-74—Circular-sweater strip machine with a revolving head assures accessibility and simplifies yarn threading. Designs are knitted in two, three, or four colors. Jacquard-shaped effects are made in diamonds, panels, and diagonals. Machine is automatic so that the pattern is altered or the fabric construction is changed by alteration of pattern wheels and chains. Jet Age Knitwear Machinery Corp.

TEXTILE WORLD . . .

Advertisers' Literature

To get items you want offered in the advertisements in this issue, just circle numbers on Reader Service Card next to the back cover. If all bulletins listed under one number are not required, please write on card the name of bulletin desired.

A-350—Pneumatic lap control. Send for illustrated brochure. Livingston & Haven, Inc.

A-351—Rotary joints. For joints to fill all needs, write for Catalog J-2002. The Johnson Corp.

A-352—Card drive. For details send for Bulletin 6100. T. B. Wood's Sons Co.

A-353—Ring lubrication system. Send for Catalog No. 34-49 for additional information. Alemite Div., Stewart-Warner Corp.

A-354—Tramrail crane. For more valuable information send for Engineering & Application Booklet No. 2008. Cleveland Tramrail Div., Cleveland Crane & Engineering Co.

A-355—Slashers. Write for catalog for more information. Cocker Machine & Foundry Co.

A-356—Rotary union. For full information write for Bulletins 700 and 800. Perfecting Service Co.

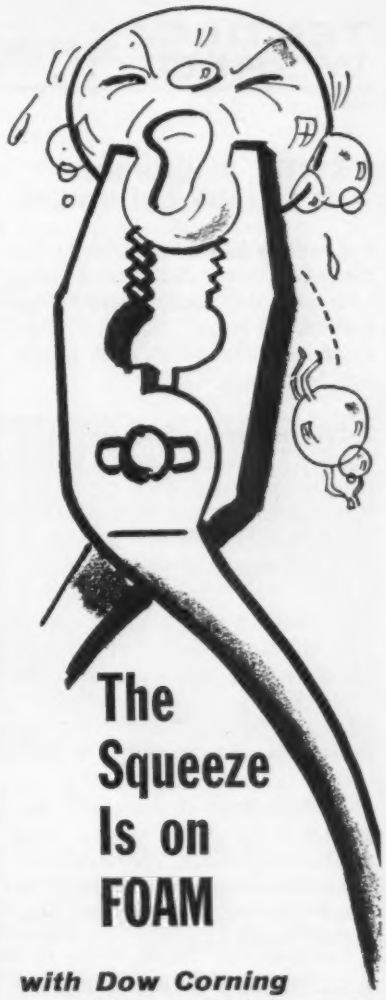
A-357—Recorders and controllers. Bulletin 20-10 and detailed engineering data sheets are yours on request. The Foxboro Co.

A-358—Dust filter. Get the complete story of Model F Aeroturn. Write Koppers Co., Inc.

A-359—Silicone defoamers. Manual on foam control and sample is yours on request. Dow Corning Corp.

Correction:

In the article "News from the Mills," (TEXTILE WORLD, May 1961, p. 126), the editors inadvertently listed Parke, Davis & Co. as a division of The Kendall Co. Parke, Davis & Co. has no affiliation with The Kendall Co.



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TEXTILE WORLD . . . New Literature

For more information on any of these items, circle appropriate number on the Reader Service Card, next to the back cover.

TEXTILE MACHINERY & AUXILIARY EQUIPMENT

L-1—Warp let-off is detailed in this 6-p. brochure. Includes a brief history of the machine and its operation. Photos illustrate uses. Contains service-policy data. Southern Machinery Co.

L-2—Colorimeter is described in this 4-p., 2-color bulletin. Labelled diagram and photos of the operation. Applications, principal features, and advantages are listed. Allied Research Associates, Inc.

L-3—Rubber rolls are discussed in this brochure. Describes different types of rolls and coverings. Information on care and handling included. Contains various applications. Tyer Rubber Corp.

L-4—Traveling cleaners are explained in this 8-p. booklet. Data on the basic design, operation, features, and results are listed. The many photos amplify the text. Parks-Cramer Co.

L-5—Vibration control is detailed in 4-p. Catalog No. 4011. Illustrates each type of mount and lists sizes and capacities. Test results of physical properties are offered. Clark-Cutler-McDermott Co.

L-6—Yarn machine is discussed in this 2-color bulletin. Diagrams, photos, and text describe operation in detail. Includes floor space requirement and machine weight. Whitin Machine Works.

CHEMICALS & SUPPLIES

L-7—Formamide is explained in 32-p. booklet. Applications in synthesis are broken down into 18 sections. Describes construction materials and physical properties. E. I. du Pont de Nemours & Co.

L-8—Safety guide on the disposal of hazardous wastes is now available in a pamphlet. Outlines recommended safe practices, methods, and procedures. Manufacturing Chemists' Association, Inc.

L-9—Solvents are described in this revised folder. Presents product specifications in comparative form and selection data. Charts show relative time of evaporation. American Mineral Spirits Co.

L-10—Acrylonitrile is discussed in this 25-p. Booklet RF-8381B. Includes information on physical properties, reactions, applications, test methods, and storage. Union Carbide International Co.

L-11—Nitrile silicone fluids are detailed in Technical Data Book S-21. General formulas for these fluids are included. Charts show typical physical and electrical properties. General Electric Co.

ENGINEERING

L-12—Torque motors are described in this 4-p. Bulletin 208A. Contains speed-torque curves, duty specifications, dimensions, applications, and a wide range of ratings. Howell Electric Motors Co.

L-13—Speed-measurement systems are detailed in 12-p. bulletin. Describes applications, calibration, accuracy, and method of selection. Photos and schematics illustrate text. General Electric Co.

L-14—Fluid heat-transfer systems are covered in this 4-p. bulletin. Includes product photos, drawings, specifications, and descriptive copy. Contains brief application reports. Radcor, Inc.

L-15—Bearing takeups are discussed in 16-p. Booklet 2741. Lists more than 320 different units. Information on selection and application with dimensional data for each frame is given. Link-Belt Co.

L-16—Motors are the subject of this Application Guide, Bulletin 010. Includes two motor-selection charts and rating and dimension tables. Discusses polyphase and single phase. Century Electric Co.

L-17—Tank heaters are featured in this 8-p. Bulletin 1623. Gives examples under operating conditions. Diagrams show over-all heat transfer coefficients. The Griscom-Russell Co.

L-18—Centrifugal pump is illustrated and described in this bulletin. Includes cross-sectional views, construction specifications, performance charts, and dimension data. The New York Air Brake Co.

L-19—Sleeve bearings are discussed and illustrated in 6-p. Folder 2823. Contains application and selection data and dimensions. A series of sketches depicts advantages. Link-Belt Co.

L-20—Core belting of nylon-polymer is introduced in 12-p. catalog. Features comprehensive engineering and application data, selection graphs plus charts for belt and width tension. Extremultus, Inc.

INSTRUMENTS & TESTERS

L-21—Potentiometer indicator is the topic of this revised edition of 4-p. Catalog 64-1. Specifications, applications, and accessories are fully discussed. Thermo Electric Co., Inc.

L-22—Thermometers and gages are concisely described in Bulletin No. 282. Photos and cross-sectional diagrams depict all models. Includes Fahrenheit and Centigrade range chart. American-Standard.

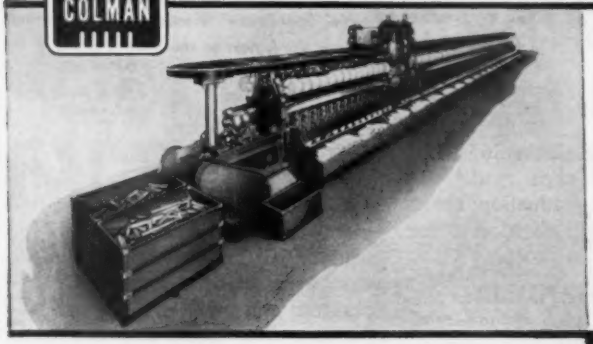
L-23—Regulators for controlling atomizing steam pressures are offered in this 2-p. catalog sheet. Covers methods of installation and operation with drawings and dimension tables. Atlas Valve Co.

L-24—Test gages and gage testing equipment are illustrated and de-

. . . *Turn to page 116*

BARBER COLMAN

MACHINES FOR MODERN MILLS

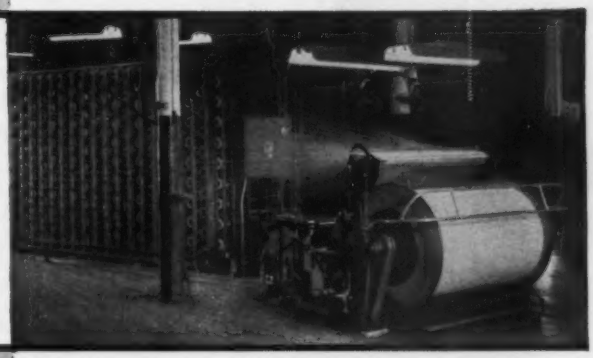


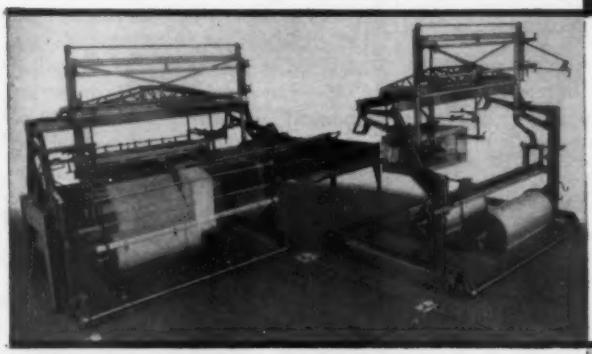
NEW TYPE "F" AUTOMATIC SPOOLER

Increased capacity in the new Type "F" Spooler permits spooling of cheeses and cones up to 6½ lbs. weight from bobbins up to 12¼" long. New features include redesigned bobbin pockets, skewers, winding drums, cheese arms, and snick plates — and the addition of a tailings sorter, tape breaker, and other optional mechanisms. As always, "Every Knot is a Weaver's Knot."

LARGE-PACKAGE SUPER-SPEED WARPER

The companion machine to the Type "F" Spooler is an improved Super-Speed Warper and Creel. The creel is arranged to take the large 6½ lb. cheeses, the warper will wind larger beams than previous models. In addition, automatic power mechanisms built into the warper enable the doffer to handle the beam from warper to floor or truck with minimum effort.



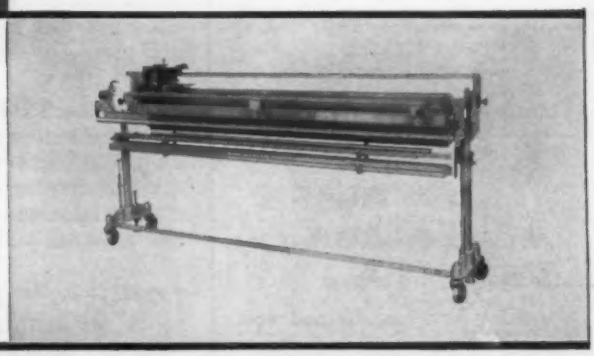


VERSATILE WARP-DRAWING MACHINES

Improved models of the familiar Barber-Colman Warp Drawing Machine now handle an even greater variety of warps, drawing them accurately from flat sheet, one-and-one lease, or double beams. The pattern-controlled mechanism automatically selects the correct thread eyes for each end, in loom combinations of as many as 26 harness, 6 banks of drop wires, and a reed.

PORTABLE WARP-TYING MACHINES

A variety of types and sizes are available to suit all conditions. They will accurately and rapidly tie-in warps of cotton, wool, linen, worsted, mohair, silk, or synthetics. All models operate up to 325 knots a minute, controlled by variable-speed motor drive. Larger stationary models can be furnished where required.



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NEW LITERATURE

. . . *Begins on page 114*

For more information on any of these items, circle appropriate number on the Reader Service Card, next to the back cover.

scribed in 8-p. Bulletin 363. Lists specifications of each model. Includes standard graduation charts. Manning, Maxwell & Moore, Inc.

MATERIAL HANDLING

L-25—Electric-truck maintenance is comprehensively discussed in this 94-p. manual. Contains 189 photos and 41 color-coded schematic circuits. Complete specifications listed. Clark Equipment Co.

L-26—Steel storage equipment is the subject of this 2-color, 16-p. booklet. Each storage, time, and money-saving idea is documented by many photos and descriptions. Alan Wood Steel Co., Penco Div.

L-27—Industry system analysis for handling produce in farmers' market distribution center is available. Photos show use of equipment. Lists loading pattern chart. Lewis-Shephard Products, Inc.

L-28—Pressure-sensitive tapes and labels are discussed in 4-color booklet. Planning guide lists 14 frequently used labeling materials and 21 tapes with physical properties and uses. Top-flight Corp.

L-29—Stencil cutting and electric-tape machines are described in this 24-p. Catalog M-60. Charts, photos, and drawings amplify text. Includes information for shippers. Marsh Stencil Machine Co.

L-30—Power tools and accessories are featured in this 16-p. bulletin. Shows 35 application photos. Contains concise product data, specifications, and advantages of various models. Acme Steel Co.

L-31—Bulk-weighing systems are explained in 4-p. brochure. Sequence drawing is supported by detailed copy. Capacities and small space requirements are tabulated. Toledo Scale Corp.

GENERAL

L-32—Ovens and related equipment are evaluated in this 64-p. Catalog No. 600. Photos and condensed descriptions give sizes, temperature ranges, voltages, and capacities. Blue M Electric Co.

L-33—Pressure regulators are described in this 12-p. Bulletin 116. Shows installations of direct and reverse acting types. Includes operations, ranges and specifications. Manning, Maxwell & Moore, Inc.

L-34—Equipment leasing is detailed in 16-p. brochure. Includes conservation of capital and credit, tax-timing benefits, balance sheet effect, and cash-flow improvement. United States Leasing Corp.

L-35—Laboratory furniture is introduced in this 2-color 38-p. catalog. Actual installations are shown. Includes photos, specifications, and construction features. Borroughs Mfg. Co.

L-36—Brushing tools are described in 20-p. book. Photos show applications in variety of manufacturing processes. Question and answer section clarifies construction details. M. W. Jenkins' Sons, Inc.

L-37—Metallizing is discussed in this 6-p. bulletin. Nine separate case histories where products were salvaged or improved are given. Photos and diagrams aid in the explanation. Metco Inc.

L-38—Rayon for industrial uses is featured in this bulletin. Charts and diagrams include: yarn strength vs. count, fatigue tests, and strength factors of belting fabrics. American Viscose Corp.

L-39—Boiler cleaning controls are featured in this bulletin. Describes standard control panels and their combinations. Specifications and special designs are included. Diamond Power Specialty Corp.

TEXTILE WORLD'S NEW FACT FILE ISSUE . . .

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MANUFACTURING DATA
36 pages of up-to-the-minute, practical know-how to be put right to work in solving your daily mill-manufacturing problems

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TEXTILE WORLD . . . Calendar

July

Gordon Research Conferences, Colby Junior College, New London, N. H., July 10 to 14

Lowell Technological Institute, textile workshop on dyeing and finishing technology and textile testing, Lowell, Mass., July 10 to 21

August

International Congress of Pure and Applied Chemistry, Montreal, Canada, Aug. 6 to 12

September

Combed Yarn Spinners Association, annual meeting, The Greenbrier, White Sulphur Springs, W. Va., Sept. 7 & 8

AATCC, Palmetto Section, Clemson House, Clemson, S. C., Sept. 15 & 16

The Elastic Fabric Manufacturers Institute, Inc., The American Power Net Association, New York, N. Y., Sept. 19

Carded Yarn Association, annual convention, The Cloister, Sea Island, Ga., Sept. 21 & 22

Southern Textile Methods and Standards Association, semi-annual meeting, Clemson House, Clemson, S. C., Sept. 21 & 22

AATCC, Piedmont Section, Hotel Charlotte, Charlotte, N. C., Sept. 23

AATCC, national convention, Hotel Statler, Buffalo, N. Y., Sept. 27 to 29

October

North Carolina Textile Manufacturers Association, Inc., annual meeting, Carolina Hotel, Pinehurst, N. C., Oct. 5 & 6

Alabama Textile Operating Executives, fall meeting, Thach Auditorium, Auburn, Ala., Oct. 7

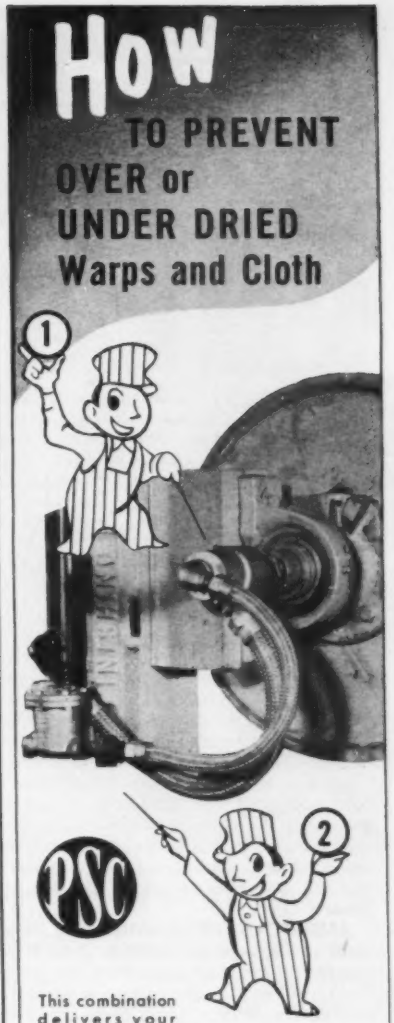
Georgia Textile Operating Executives, fall meeting, Hightower Building, Georgia Institute of Technology, Atlanta, Ga., Oct. 14

November

National Cotton Council of America, Chemical Finishing Conference, Washington, D. C., Nov. 8 & 9

Thread Institute, annual meeting, Hotel Commodore, New York, N. Y., Nov. 9

Narrow Fabrics Institute, Inc., fall meeting, Statler Hilton, New York, N. Y., Nov. 13 & 14



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TEXTILE WORLD . . . News About Suppliers

L. LOUIS MALM (left) has been elected a vice president of Midland-Ross Corp. and general manager of its new division of Industrial Rayon Co., both of Cleveland, Ohio. JACK W. RETTEW (center) has been appointed sales manager for the southern divisions of Fletcher Industries, Philadelphia, Pa. RAYMOND R. CURRIER (right) has been named to the newly created position of supervisor, textile industry sales, for the chemical division of Pittsburgh Plate Glass Co., Pittsburgh, Pa.

AIR REDUCTION CO., INC., New York, N. Y., has appointed Gilbert R. Rothschild assistant director of metallurgical development, a new division of Central Research Laboratories in Murray Hill, N. J. The sales company has named W. B. Moen manager of Cryogenic Engineering Dept., Plainfield, N. J. The following were appointed district managers in the Colton polymers department: Robert C. Gilardi, Western district; William F. Lehr, Eastern district; and John V. Kaine, Central district. . . . **ALLIED CHEMICAL CORP.,** New York, N. Y., has realigned its Fiber Marketing sales organization. James P. Connelly has joined the company as manager of marketing apparel. Two other divisions have also made appointments. Kenneth R. Osborne was named to the newly created post of director of industrial development, General Chemical Div. Dr. Charles E. McGinn was named assistant director of research for Solvay Process Div.

AMERICAN CYANAMID CO., New York, N. Y., has made two changes in its Fibers Div.: C. R. Stock promoted to manager of the fibers application laboratory at its Bound Brook Plant and Ira P. Schneiderman appointed to the newly created post of coordinator, trade press relations. . . . **AMERICAN VISCOSE CORP.,** Philadelphia, Pa., has named William M. Nolan manager of the Market Development Dept. The Fibers Div. has appointed Charles J. Geyer manufacturing and technical director. . . . **LOUIS P. BATSON CO.,** Greenville, S. C., has appointed the following men to its sales organization to cover portions of the Southeast territory: J. Morgan Ruppe, Addie C. Bland, and Joe A. Williams. . . . **CHEMSTRAND CORP.,** New York, N. Y., has promoted John C. Harralson technical service representative in the Applications Research & Service Dept. L. P. Edwards has been named to the Customer Services Staff and will serve as traffic specialist at the Greenville, S. C. office.

CLINTON CORN PROCESSING CO., Clinton, Iowa, has elected Harold A. Bendixen president. W. Andy King has been named sales representative in the South Carolina area. . . . **DIAMOND ALKALI CO.,** Cleveland, Ohio, has promoted Howard E. Everson director of research. . . . **DODGE MFG. CORP.,** Mishawaka, Ind., has appointed John M. Macy assistant to David M. Firth, vice president in charge of manufacturing. . . . **DOW CORNING CORP.,** Midland, Mich., has named Robert E. Vidal manager of the Greensboro Div. . . . **EXTREMULTUS, INC.,** Englewood, N. J., has completed a move to a new larger plant at 130 Coolidge Ave., Englewood, N. J. The plant will house the company's new United States manufacturing facilities.

GEIGY CHEMICAL CORP., Yonkers, N. Y., has announced that Conrad G. Hurlimann has joined the company as vice president and director. . . **GENERAL ANILINE & FILM CORP.,** New York, N. Y., has appointed Emil A. Wich manager, technical service and development, of Collway Pigments Div. . . . **KOPPERS CO., INC.,** Pittsburgh, Pa., has named Gayle Rogers Southern district sales manager in the Dyestuffs Dept. of the Chemicals and Dyestuffs Div. Three appointments have been made in the Tar Products Div. The Sales Dept. has promoted John T. Tierney Jr. to sales manager of the recently formed Eastern Road Materials Dept. The Marketing Dept. has named D. D. Hamilton special assistant to the manager of marketing. R. B. Weidlein succeeds Mr. Hamilton as sales manager of the Pittsburgh Sales District.

LEESONA CORP., Providence, R. I., has announced that John A. Amory has joined the marketing staff as a senior market analyst. . . . **MONSANTO CHEMICAL CO.,** Springfield, Mass., has promoted Richard T. Clark director of sales for vinyl products, in the Plastics Div. . . . **MORETEX CHEMICAL PRODUCTS INC.,** Spartanburg, S. C., has appointed Richard C. Richardson North Carolina technical representative. . . . **NATIONAL STARCH & CHEMICAL CORP.,** New York, N. Y., has elected William C. Buffing Jr. a vice president. . . . **OLIN MATHIESON CHEMICAL CORP.,** New York, N. Y., has appointed Robert D. Eklund district sales manager for the Middle Atlantic district film operations of the Packaging Div.

RIDGE TOOL CO., Elyria, Ohio, has announced that Paul Selby has joined the Canadian sales force. . . . **SKF INDUSTRIES, INC.,** Philadelphia, Pa., is planning to build a $1-million facility for manufacturing research and development of special types of bearing production machinery in Kilmarnock Industrial Park, Md. . . . **SCOTT TESTERS (SOUTHERN), INC.,** Spartanburg, S. C., has completed new plant facilities which double the operating capacity of its five-year-old building. . . . **SONOCO PRODUCTS CO.,** Hartsville, S. C., has named L. H. Stokes to the newly created position of general field-sales manager. . . . **A. E. STALEY MFG. CO.,** Decatur, Ill., has appointed Dr. James A. Bralley manager of the research and development division. Dr. E. Eugene Fisher succeeds Dr. Bralley as director of chemical research. The company also named L. E. Doxsie to take over the executive responsibilities of the corn division and succeeds L. S. Roehm, who resigned, on the operating committee.

STOWE-WOODWARD, INC., Newton Upper Falls, Mass., has promoted Dr. Warren Stubblebine to sales manager of the Roll Div. The company also officially opened its new Neenah, Wisc., plant in May. The new plant went into operation late last year. . . . **TEXTILE MACHINE WORKS,** Reading, Pa., has acquired the capital stock of J. L. Ferguson Co., also of Reading. . . . **WESTINGHOUSE ELECTRIC CORP.,** Pittsburgh, Pa., has appointed Charles W. Mills manager of market development in the apparatus sales organization. John G. Aldworth was named to succeed Mr. Mills as manager of the electric utility sales department. . . . **WHITIN MACHINE WORKS,** Whitinsville, Mass., has passed the $2-million mark on orders of its Audomac Doffer System. Myron B. Chace has been named project manager for the new system.

DOW CORNING CORP. has recently completed this modern office and laboratory building in Greensboro, N. C. The 10,000-sq.-ft. building is part of the expansion program for production and laboratory facilities.

TEXTILE WORLD . . .

News About Men

JOHN E. O'SULLIVAN (left) has been elected an executive vice president and director of Indian Head Mills, Inc., New York, N. Y. JAMES J. GAVIN, JR. (right) has been elected vice president and treasurer to succeed Mr. O'Sullivan.

Joseph J. Alderdice has been named to the new post of executive vice president and a director of Bates Fabrics, Inc., New York, N. Y., a subsidiary of Bates Mfg. Co.

Berry Bland has been named manager of weaving, dyeing, and finishing at the Cramerton, N. C., mills of Burlington Industries, Inc.

George L. Boll has been elected assistant vice president of Wellington Sears Co., New York, N. Y.

Lewis L. Bowen has been promoted to general superintendent of the four plants of Alice Mfg. Co., Easley, S. C.

Charles L. Brooks has been appointed manager of the Dalton Div., Bibb Mfg. Co., Macon, Ga.

Roy Bryant has joined Trenton Mills, Inc., Trenton, Tenn., as superintendent.

Horace W. Buchanan has joined Reeves Brothers, Inc., as superintendent of the Osage plant at Bessemer City, N. C.

C. S. Clegg has resigned as president and treasurer of Globe Mills Co., Mount Holly, N. C., because of health reasons.

David Curtis, a vice president of Kenyon Piece Dye Works, Inc., has been re-elected president of the Rhode Island Textile Association, Providence, R. I.

Lucius Delk has joined Burlington Industries, Inc., as manufacturing manager of dyeing and finishing at the Mooresville N. C. Mills.

Arman Dimeo has joined Silco Knitting Mills, Inc., Woodside, N. Y., as vice president in charge of technical sales and fabric development.

Edward M. Edwin has been elected president of E. M. E. Mills, Inc., New York, N. Y.

Milton K. Emerson has resigned as vice president of Housatonic Dyeing and Printing Co. and Hull Dye Works, Inc., Derby, Conn.

Rex Fairchild has been named superintendent of finishing of the Willimantic Mills of American Thread Co., Willimantic, Conn.

Anthony Fantagone has been appointed manager of the knitting division, E. M. E. Mills, Inc., New York, N. Y.

John E. Field has been named president of Cone Mills Inc., New York, N. Y.

Roy M. Fingar, formerly superintendent of the knitting division of Draper Bros. Co., Canton, Mass., has recently resigned.

. . . Turn the page

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Koppers *new* MODEL F AEROTURN dust filter is not a modification of a filter designed for some other purpose. Nor is it an all-purpose unit. MODEL F AEROTURN has been designed from the ground up for the express purpose of collecting fibrous and linty materials with higher efficiency, greater economy.

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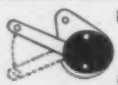

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News About Men

. . . Begins on page 119

Albert J. Gilet, Jr., has been promoted to assistant superintendent in charge of yarn manufacturing at Huyck Felt Co., Rensselaer, N. Y.

James B. Griffin, general superintendent of Waverly Mills, Inc., Laurinburg, N. C., was named "Man of the Year" by the North Carolina State College Chapter of Phi Psi.

Lewis M. Heflin has been appointed chairman of the board, Cone Mills Inc., New York, N. Y.

John C. Hope has joined Chicopee Mfg. Corp., Cornelia, Ga. He will head a new piece-goods dyeing operation being installed in the company's plastic plant.

Wallace C. Houston has recently been promoted to superintendent of the Elljean plant of Alice Mfg. Co., Easley, S. C.

W. Dan Hurst has been named vice president and general manager of manufacturing of Candlewick Yarn Mills, Inc., (Dalton, Ga.), a subsidiary of Dixie Mercerizing Co., Chattanooga, Tenn.

L. P. Irwin has joined the sales staff of Kimberly-Stevens Corp., New York, N. Y., and will work on new products.

C. S. Kilby has recently joined the sales division of Kimberly-Stevens Corp., New York, N. Y.

Richard T. Kropf has been elected president and chief administrative officer of Belding Heminway Co., Inc., New York, N. Y.

Herbert Louis has recently succeeded his father as president and chief officer of Irwill Knitwear Corp., New York, N. Y.

Charles S. Johnson has been promoted to assistant general manager of the Willimantic Mills of American Thread Co., Willimantic, Conn.

William McBee has rejoined American Thread Co., Willimantic, Conn., as assistant superintendent of finishing.

Earl H. McCallister has retired from the Greer S. C. plant of J. P. Stevens & Co., Inc., after 63 years service in textiles.

Charles D. McGoldrick has been named superintendent of dyeing at Clifton Yarn Mills, Inc., Clifton Heights, Pa.

Max Mizel has resigned as vice president of Atlas Fabrics Corp., Philadelphia, Pa., to start a new firm.

Albert G. Myers, Jr. has been elected president of Textiles., Inc. and its subsidiary, Threads, Inc., Gastonia, N. C.

Vincent Neri, Jr. has been named superintendent of the manufacturing and finishing departments of Uncas Mfg. Co., Providence, R. I.

Sam G. Owens has recently been promoted to company

LOUIS SHOWALTER has been appointed by Dawbarn Bros., Inc., Waynesboro, Va., to handle all sales of materials going to the company's increasing rope market.

DR. DONALD H. POWERS has been named assistant director of Fabric Research Laboratories, Inc., Dedham, Mass. He will head up the chemical research functions.

BRYCE R. HOLT, JR., has resigned from Peerless Woolen Mills, Rossville, Ga., a division of Burlington Industries, Inc. He plans to form the Holt Textile Sales Co., in Dalton, Ga.

engineer of Alice Mfg. Co., Easley, S. C.

John W. Poulson has been elected president and a director of Bates Fabrics, Inc., New York, N. Y.

John J. Quinn has joined the cotton division of J. P. Stevens & Co., Inc., New York, N. Y. He will be responsible for the development of their branded terry towels.

Alfred H. Randall has been appointed manager of the Salisbury, N. C., plant of Cone Mills Corp.

L. D. Sayers has resigned as executive assistant of the Opp and Micolas Cotton Mills, Inc., Opp, Ala.

Lowell Southerland has been named superintendent of the Foster plant of Alice Mfg. Co., Easley, S. C.

C. E. Sytz has been appointed general manager of the Glenoit Mills, Inc., Janesville, Wisc., a subsidiary of Botany Industries, Inc. He will serve as superintendent of their Tarboro, N. C. plant.

Emmett S. Werthman has been elected a vice president of Yates Bleachery Co., Inc., Flintstone, Ga.

Clarence J. Whitehead has been named plant superintendent of Harmony Grove Mills, Commerce, Ga.

James D. Wise has retired as chairman of the board of Bigelow-Sanford Carpet Co., Inc., New York, N. Y.

OBITUARIES

John S. Abney, 39, president and treasurer, Abney Mills, Greenwood, S. C.

Raymond S. Bartlett, 81, retired executive vice president and general manager, Botany Mills, Inc., Passaic, N. J.

Cason J. Callaway, 66, retired president, Callaway Mills Co., La Grange, Ga.

Alfred J. de Gozzaldi, 69, (lost at sea), chairman of the board, Roxbury Carpet Co., Saxonville, Mass.

Harold M. Grout, 90, former secretary and director, Cluett, Peabody & Co., Inc., Waterford, N. Y.

Reginald L. Hopper, 49, manager of hotel linen supply and institutional department sales, Dundee Mills, Inc., New York, N. Y.

Robert E. Kerr, 66, retired vice president and director, American Thread Co., New York, N. Y.

John Land, 56, president, Textiles-Inc. and its subsidiary, Threads, Inc., Gastonia, N. C.

R. T. LeGrand, 81, chairman of the board, Shelby Cotton Mills, Shelby, N. C.

Albert Mecklenburger, 78, co-founder, president, and chairman of the board, Felt Products Mfg. Co., Skokie, Ill.

Albert L. Schoff, 67, former vice president and treasurer, Irving Worsted Co., Chester, Pa.

Earl G. Wilson, 69, operator, Wilson Hosiery Mill, Haw River, N. C.

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Top Quality Mechanic available. Knowledge all phases Raschel knitting. Experienced in managing plant. No objections to any destination. PW-6988, Textile World.

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1—Fletcher D.D. Uptwister, 40 spdls.—1953

1—Fletcher Stainless 30" Extractor, Auto. timer
1—Becco Continuous S.S. Bleach Range, J-Box, 2000 yd/hr. Saturator—1954
1—Morrison Williams Range 60", 15 ton, pad, 2-Williams Units, 3-washers, Vac. Extractor, MG Set—1948
1—Verduin Hyd. Padder, 60", 15 ton, 20" dia. rubber rolls
1—Morrison Micro-Set Pad. 60", 8 ton, 14" dia. rubber rolls
1—Richard Hyd. Calender, 60", 40 ton, varidrive
1—P & S Loop Dryer, 60' long, 126" sticks—1948
1—Rodney Hunt Stainless Encl. 16' Dye Box
1—Burlington Stainless Pressure Beam Dye Machine—1949
2—Smith Drum Stainless Package Dye Units, 500 lb.—1948
1—Obermeir Stainless Package Dye Unit, 300 lbs.—1 carrier
1—P & W Hi-Speed Davidson Shear, 3 blades, 66½"—1947
3—Werner Stainless Encl. 70" dye Jiggs, no motors
1—Meadows Hyd. Embossing Calender, 72", 25 ton—1949
1—Rodney Hunt Stainless 40" dye unit, pneu. padder—1952
1—Rodney Hunt Stainless 2 comp't Washer, 80" wide
14—Stainless Steel Dry Cans, 74" wide, 30" dia.
1—Tolhurst 48" Cent. Extractor, S.S. Basket

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1—SLIVER TESTER, Saco-Lowell, 3 Groove, Portable type, (in fitted case).
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2—DOUBLING, WIND. & MEAS. MACH., Windle, 58", with Trumeters, M.D.
16—CORDUROY CUTTING MACH., Firsching, Model ES, 1956-57, 58" width, M.D.
1—PC. DYE KETTLE, R. Hunt, Trushade, 80", 8 String, 60" deep, Hump Reel.
3—LIGHTNIN MIXERS, S.S. Shafts, Propellers, Swivel clamps, ¼, 1/20 Mtrs.
1—NAPPER, D&F., Double Acting, 80", 24 Roll, S.S. Wire, 10 Hp. V-Belt Dr.
1—PADDER, 80", 2 Rubber Rolls, 11" dia., Lever and weight set, S.S. Pan.
1—ROTARY STEAM PRESS, Voelker, 86", 15½" dia. Cylinder, Double Bed.
1—SLITTING RANGE for Tubular Goods, 54", Detwister, Detacker, Folder.
1—SHEAR, C&M., 66", Flat Blade, File Cut Revolvers, Folder, Motor Drive.
1—SHEAR, P&W., 84", 3 Blade, Ind. driven roller bearing Revolvers, M.D.
1—STEAMER, Universal, 72", tension leton, Steam Box, 12" dia. Cyl., M.D.
1—SHRINKING MACH., Mawaco, Model 45, Steaming, Hot Plate, Cooling, M.D.
1—TENTER FRAME, Clip type, 53" wide x 20' long, Air Guiders, Batcher, M.D.
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(Continued from page 121)

TEXTILE APPLICATIONS CHEMIST

To conduct research in the laboratory development of new or improved textile auxiliaries with the opportunity to perform technical service during the introduction of new products or processes. Position requires B.S. in Chemistry or equivalent training with good background in organic synthesis. 2 to 5 years experience in textile chemistry essential with background of mill experience in application of resins, bleaches, etc. to cotton, rayon and wool.

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TEXTILE ENGINEER

Desire a Process Engineer with a degree and five years experience. Must have potential to advance to a supervisory position. Will be responsible for projects in our cotton processing work. Nationally known for our excellent working conditions and fringe benefits. Send complete background history and salary requirements to:

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Modern Finishing, Bleaching, Dyeing and Printing Machinery for Sale

BLEACHING

1 Morrison Continuous Rope Bleaching unit consisting of
- 3—Rodney Hunt Stainless Steel Tensitrol Rope Washers
- 1—Morrison Stainless Steel Peroxide Saturator
- 1—Morrison S.S. J Box

1 Weisner-Rapp S.S. Continuous Rope Bleaching Unit consisting of
- 1—Rodney Hunt S.S. Tensitrol Rope Washer
- 1—Weisner-Rapp J Box, 20' high

4 Rodney Hunt S.S. Rope Washers
1 Aluminum Peroxide Tank, 5000 gals.
24 Allen Kiers
4 Perkins Bin Pilers
2 Kemp Singer Units

MERCERIZING

1 Butterworth Mercerizing Unit consisting of
- 1—Butterworth 60' Frame, M.G. Set
- 3—Section Scott Wash and Recovery Unit

FINISHING

34 S.S. Dry Cans 90 x 30" dia.
1 Proc[illegible] & Schwartz Roller Dryer 24'
1 Butterworth 90' Enclosed High Speed Tenter Frame, Proctor & Schwartz housing
1 Butterworth 80' Enclosed High Speed Tenter Frame and housing
2 Van Vlaanderan Finishing Ranges, 1—110', 1—90', consisting of high speed tenter frame 65", 70" padder, Mt. Hope Scray, S.S. High pressure cans, Automatic Batching Equipment, National housing
1 Textile 70' Enclosed High Speed Tenter Frame
1 McKiernan-Terry Combination Schreiner, Friction and Rolling Calendar, 50 ton
1 Perkins 3 roll 100 ton Hydraulic Calendar
2 Perkins 5 roll 50 ton Calendars
1 Proctor & Schwartz Gas Fired Loop Curer
1 Morrison Rubber Belt Compressive Shrinkage Range, Reliance drive
1 V.V. Palmer Tenter Unit 40'
1 V.V. roll Calendar 60"
2 V.V. Heavy Duty Tenter Frames 60 x 66"
61 S.S. Dry Cans 47", 30 lbs. pressure
44 S.S. Dry Cans 142 x 23" dia.
1 Cocker Indigo Dye Range, 1948

WASHING AND DYEING

1 3 roll Padder, air set, motor
1 Continuous Dye Range consisting of
- 1—Andrews & Goodrich Roller Pre Dryer
- 1—Rodney Hunt 6' Tensitrol Washer
- 1—3 compartment Open Width Wash Unit

1 S.S. 4 compartment Open Width Washer
1 Burlington S.S. Beam Dyeing Unit
8 Textile & Werner S.S. Dye Jiggs 50" to 70"
13 S.S. Dye Boxes

PRINTING AND AGEING

1 Proctor & Schwartz Loop Ager, 1954
1 S.S. Acid Ager 24'
1 Rice, Barton & Fales 50" 10 color Print Machine
1 Rice, Barton & Fales 8 color Super Precision Print Machine 50"
2 Rice, Barton & Fales 8 color Print Machine 44"
1 Rice, Barton & Fales 6 color Print Machine 44"
5 Rice, Barton & Fales and Textile 8 color Print Machines 50" to 66"
4 Vat Agers
3000 Engraved Copper Rollers

OTHER MODERN TEXTILE MACHINERY

60 Draper XD Looms, 60", 20 harness dobby, Unifil winders, motors and drives
120 Draper XD Looms, 64", 20 harness dobby, Unifil winders, motors and drives
91 Draper XD Looms, 54" reed, Diehl and motor, 1947-51
36 Whitin F2 Spinning Frames, 3½" ga. super draft
62 Saco-Lowell Spinning Frames 3¼" ga.
12 Atwood Redraws, 68 spindles, 1950
56 Universal #10 Uptwisters, 184 spdls. 2 lbs. headless package, 1950
3 Sipp-Eastwood Warpers and Creels, 1949
3 Abbott Quillers, 1955
56 C. & K. Big 6 S6 Looms 56" b.s. 1948
1 Johnson, 9-can S.S. slasher
1 Morton S.S. package dyeing unit
2—500 Pkg. Kettles, 2—150 Pkg. Kettles

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3—BS CALENDERS 50"—65"

2—DOUBLE PUMP DECATIZERS

5—VV TENSIONLESS TUBERS 50"—70"

1—20 FAN NATIONAL LOOP DRYER 110"

22—DYEBECKS, WOODEN SS LINED WITH COVERS

2—SAMPLE ENCLOSED DYE BECKS

1—48" SS EXTRACTOR

1—HINNEKENS 60" BOILOFF

5—WERNER 50" HYDRAULIC EMBOSSERS

1—VERDUIN 50" FRICTION CALENDER

14—DYE JIGGS 50"—70" WITH AND WITHOUT COVERS

COMPLETE MACHINE SHOP, LABORATORY AND OFFICE EQUIPMENT; ALL AUXILIARY EQUIPMENT SUCH AS TRUCKS, SPARE PARTS, PAILS, ETC.

50—50 LB. SS CANS 70"—90"

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65,000 spindles, 3" gauge, Whitin Model F and B
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15,000 spindles, 3¼" gauge, Whitin Model B
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5,200 spindles, 3½" gauge, Saco-Lowell (latest head)
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Completely Modernize with:

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WE OFFER FOR SALE

1—Johnson 7 Can SS Slasher
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1—Benoit Wool Blending System
4—Wool Spinning Frames, Model C & D, M.D.
1M—New Whitin-Woonsocket 11 x 5½ Bobbins
300—Pr. 22" Beam Heads, 130T, 8P, Flush
100M—New 13" Stainless Steel Heddles, .010
4—L-S Hydraulic Lift Trucks, 2000Lb.
1—Sharples Centrifuge, 15,000 RPM.
1—Toledo 3125 Lb. Platform Scale, Printweigh

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30 lbs pressure 15 cans each set, individual motor & Reeves drive. Complete units.

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Following is a Partial List of Machinery Offered for Sale:

2—90′ x 60″ Enclosed Tenter Ranges, gas and steam heated.

42—Enclosed and Open All Stainless Steel Dye Becks, 2′ widths through 20′ widths

46—Enclosed and Open All Stainless Steel Dye Jigs, 60″ widths through 70″ widths.

12—Padders, 50″, 60″ and 70″ widths, 2 and 3 roll, 5 ton, 10 ton and 15 ton pressure.

26—All Stainless Steel Smith Drum Cascade Type Skein Dyeing Machines, 1 Arm, 3 Arm, 5 Arm, 7 Arm, 12 Arm, and 20 Arm.

9—All Stainless Steel Package Dyeing Machines, 100 lb., 250 lb., 500 lb. and Sample Machines.

4—Skein Dryers.

2—Package Dryers.

5—Loop Dryers, 3 Fan to 20 Fan, gas fired type and steam heated type.

6—Semi Decators, 60″ to 72″ widths, double pump and single pump types, complete with Blankets.

1—48″ 3 Roll Hydraulic Calender, 80 ton pressure.

1—50″ 80 ton Hydraulic Calender, anti-friction bearings.

6—50″, 60″ and 65″ 3 Roll Calenders, 7½ ton pressure, anti-friction bearings.

3—Button Breakers, 60″—64″ widths.

2—60″ Extractors, stainless steel baskets, safety covers, auto. timers.

11—Extractors, 40″, 48″, 60″ widths, copper baskets.

7—Tenter Frames, 40′ to 60′ lengths, 62″ widths.

5—Palmers, 65″—70″ widths.

2—54″ Embossing Calenders.

1—Pad Steam Range 66″ wide, consisting of 3 Roll 15 ton Padder, 1—16′ long Steamer, 1—4 Compartment Stainless Steel Open Width Washer with 4 sets of pneumatic squeeze rolls, fully synchronized with M. G. Set.

1—Stainless Steel Continuous Bleach Range, rope form.

9—Print Machines, 6 color and 8 color, 40″ to 64″ widths.

3—Air Compressors, 1 to 2 horsepower.

900—Trucks, stainless steel and wood.

11—Scrays.

1—57″ Compressive Shrinking Range.

10—Beamers, 60″ to 70″ widths.

6—Singers, 60″ to 70″ widths.

40—Hoists, electric and mechanical type.

8—Klauder Weldon Skein Dyeing Machines.

10—Buhlman Skein Dyeing Machines.

12—Stainless Steel Tanks.

28—Examining and Tubing Machines, 54″ to 70″ widths.

2—Heat Setting Machines, 72″ wide.

2—66″ Hinnekens Boil-off Machines.

39—Sewing Machines, butt seam and wet type. Complete Laboratory Equipment including Launder-Ometer, New Porosity Tester, Ovens, Scales, etc.
Complete Machine Shop.
Complete Woodworking Shop.
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PRICES SLASHED

Modern Dyeing & Finishing Machinery of Ming Toy Dyeing Co., Paterson, New Jersey

MUST VACATE BUILDING

1—64" x 70' Enclosed Tenter Range, 60' Housing, Pneumatic Padder, Pre-Heater, Heat Setting Roller Curer, Hydraulic Batcher, Auto. Cut-Off.

1—Tenter Frame 50' x 60" with S.S. Clips.

1—Tenter Frame 60' x 50" with S.S. Clips.

2—Werner 60" & 50" Pneumatic Padders, 2 rubber rolls.

1—Morrison Tenter 50" x 50', S.S. Clips.

2—50" V.V. 3-roll Calenders.

1—52" Hinnekens Boil-Off.

1—Open Width Washer 65", 3 compartments, 3 sets of rubber squeeze rolls.

1—65" Singer-long flame burners with Motor driven brushes.

1—65" Textile Singer.

3—Merrows 60 D3B with tables & motors & 2 Merrows 60 D3B on tracks.

1—V.V. 73" B.B. Decatur.

1—60" and 1—50" V.V. Tubers.

3—70" Werner S.S. Jiggs.

1—54" V.V. Double Embosser. 4' to 12' S.S. Lined Dye Becks.

3—51" to 62" Beamers.

1—60" Eastwood Folder.

6—10' and 12' S.S. Oval Reels.

1—2 ton Chain Hoist.

3—Water Softeners, fully automatic, 10' x 10', 8' x 10'.

1—750 H.P. Boiler, Steam Generator, Water Walls, 80,000 lbs. Steam per Hr.

3—Filter Tanks.

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3—600 Live End Magazine Creels
4—B.C. Knotting Machines 56" LL, LS, LC
2—Terrell Model L Strippers—hoist
1—Cocker Warper 22" dia. drum—for 54½x30"
20—Universal #50 Cone Winders—Pineapple
25—Walton Reconditioned 110 V Humidifiers
300—AMCO Atomizer Heads—Controls—Valves
300—Pr. 22" Dia. Draper Beam Heads 130T SP
200—B.C. Section Beams 26"x54½"x9" bbl.
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Send Complete Specifications
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8—U. S. HDless Pkg. Twisters
70—Foster 75A Winders
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10—Atwood & Sipp Redraws
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1—Haskell & Dawes Circular Twisters

100 UNIVERSAL NO. 50 WINDERS

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72—8-6 50" B/S dobby, C&K Looms
20—XK 44" TAFFETA motion, Draper Looms
5—#50 Universal Cone Winders
2—Whitin Speed-O-Matic Quillers, 1956
200—Abbott Quiller motors & other parts
12—Deliverios Whitin bi-coil drawing, 1949
4—Whitin 1948 Lap Winders
2—Johnson slashers, 7 can, Teflon
1—Magnesium Sipp Warper, 600 end creel
2—Warpers & 1000 end creels, Reiner & Sipp
1—Universal creel, 350 ends
1—Sipp-Eastwood creel, 700 ends
6—Bobbin Strippers, K & L, also roving
2—Tensionless Batchers, DC
6—B/C warp tying mach., LC LS LL K
1—Cloth Trimmer, 72", with Kaumagraph
1—Edmunds high speed layer, ⅝" rope
2—Haskell Dawes S Formers for rope, 1956

SUPPLIES

10—SS tanks & kettles, up to 1000 gal
5000M—Drop Wires, all types
15M—Single & double rod harness frames
2000M—Heddles, 10-10". Also selvage heddles
500M—Quills, 3, 5, 6 butt, all lengths
750—NEW hank clocks & used pick clocks
200—Parks-Cramer humidifier heads
6—S.S. Hook Reeds, 8-15 dent
500—Electric Stop motions and parts
8000—Gates Rubber & Dance Canvas Lug Straps
3000—Gates Texhide and rawhide pickers
15,000—Pick Gears for E. K. XD, XK Looms
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CASCADE TYPE — 1951 MODEL

2 - 3 ARM MACHINES — 2-5 ARM MACHINES — 1 - 7 ARM

3 REINER TRICOT WARPERS

21" x 21" SW 24's—2 with Lindley Slashers
1953—MODEL

COCKER—600 END CREEL

ALL ALSOM5G—
ALSO COCKER 21 x 21 WARPER

10. U. S. REDRAWS . . .

52 SP. EACH—HI SPEED—SPINDLELESS
Hen. Tensions—1 lb. Cap.

6—ATWOOD 10-B's 2-LB. DOUBLERS

100 Spindles per Machine, 7" Ga.—8" Traverse Tapered Wind.

3—SIPP-EASTWOOD 101" MAG. DY— GOOD COND. WARPERS

- 4 SPEED MOTORS HORIZ. 8 YD. SILK TYPE.

3—D. Gessner, 16 Roll, D. Active Nappers 80"

1—D. Gessner, 18 Roll, D. Active Napper 80"

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1—Schlenter Shearing Machine, 72"

350—Textile Flat Braiders, 13 to 144 Carriers

100—Textile Tubular Braiders, 16 to 64 Carriers

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2—Fletcher Victory Looms 16'—66 space

1—24 space Fletcher Webbing Loom, New Batten for Seat Belts

6—C & K Webbing Looms—24 space

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200 Sp. Ea—4½" Gauge—3¼ Ring, 9¼ Trav. Pneumatic

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JUMBO TYPE — 5 LB. CAP. . .

1 - 48 SPINDLE & 1 - 24 SPINDLE — 1958 . . 9" GA. . . 9" TRAVERSE . . 7" RING . . SPOOLS & CREEL . . ALL HEANIUM GUIDES & K. O.

1—R & L 6'-60" Enclosed S.S. Dye Beck.
1—Birch Bros. 70" Vac. Extractor with Ads Slot & Rolling Nash L-4 Pump.
Bramwell Feeder & Blender.
1—K-W 400 1954 Totally Enclosed Paddle Dye Machine.
1—S.D. Totally S.S. 300 lb. Rotary. 12 Comp.
1—Venango S.S. Rotary 100 lb 4 comp.

COCKER—80" DOUBLE SIZE BOX

60 Gal. Cap. Pneumatic—Stainless & Rubber Rolls

100 LB.— SMITH DRUM PACKAGE DYE MACHINE

80 Pkg.—⅝ Tube—Complete with Carriers and Brown Instruments.

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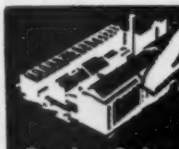
1947—200 SPINDLES TWISTERS
5½" GAUGE—9" TRAV. 15 HP. MOTORS
4½" RING—LIKE NEW COND.



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Good Machinery—Low prices

2—Air Perme-ator Humidifiers.
1—VV Clip Tenter Frame 50'x60".
1—VV Palmer—60".
1—Sipp E. Hy Speed Warper 83".
8.S. Dye Jiggs 50" & 60".
1—VV 3 Roll Calender 60"
Cottage Steamer—8'x12'.
33—Spdle Whitin Schweiter Auto Quillers.
1—RB&F 44" 5 color print machine.
1—Hinnekins Moire Calender 50" New.
1—Hercules Extractor 50" Copper Basket.
1—Johnson Sizer, 5 Copper Cans 60".
Air Compressors—5 HP & 10 HP.

STAVE & KESSLER
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FOR SALE

Priced to sell now. *Inquire and be convinced.*

46—Warner & Swasey "Sulzer" Automatic Shuttleless Looms, 80" wide; 30 looms—standard 8 harness; 16 looms—Staubli Heads 25 harness, pick and pick motions, supplies, etc.

24—Crompton & Knowles Looms, 56½" between swords, 4 x 1 Box Automatic, 25 harness dobby with multi-pliers.

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FOR SALE!

1—Open 50" Dye Range
1—Open 50" Soaper
1—V. V. 50" Clip Tenter
1—Complete Dye-Finish Laboratory
1—20'x60" Tenter-Housing

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TEXTILE AUXILIARIES INC.

"SPECIALIZING IN BLEACHING, PRINTING, DYEING AND FINISHING EQUIPMENT"

2—10', 1—6' and 3—4'x9'x30" S.S. Dye Becks with set of Riggs Lombard Pneumatic Squeeze Rolls, 7½" diameter, S.S. bottom roll and rubber top roll.
1—Butterworth Pin Tenter Frame 75' long x 200" wide, complete with tension bars, take off, Housing 37'x20'x7'8", turbine blowers, produce 300 degrees F. and Chromolux setting unit, 213" rods, 450 degrees F., blowers, fans, etc.
1—Textile Vertical Set of 8—23" diameter x 50" Dry Cans with 3 Roll Padder for Narrow Fabrics, also, 1 Set, Horizontal, of 11—23" diameter by 24" Copper Dry Cans with 3 Roll Padder.
Stainless Steel Tanks.
Reeves Drives, All Sizes, Open & Closed.
1—5 Color R.B.&F Printing Machine, 44" complete with Backrigging, Dry Cans, motor, etc.
2—90" x 50", 1—40" x 54" and 1—30" x 72" Winser and Jerauld Tenter Frames.
3—Cook Detwisters.
300 Braiders from 12 to 72 Carriers.
Calenders, Embossing, also 3 & 5 Rolls, all widths.
Padders up to 120" wide.
Copper Jacketed Mixing Kettles.

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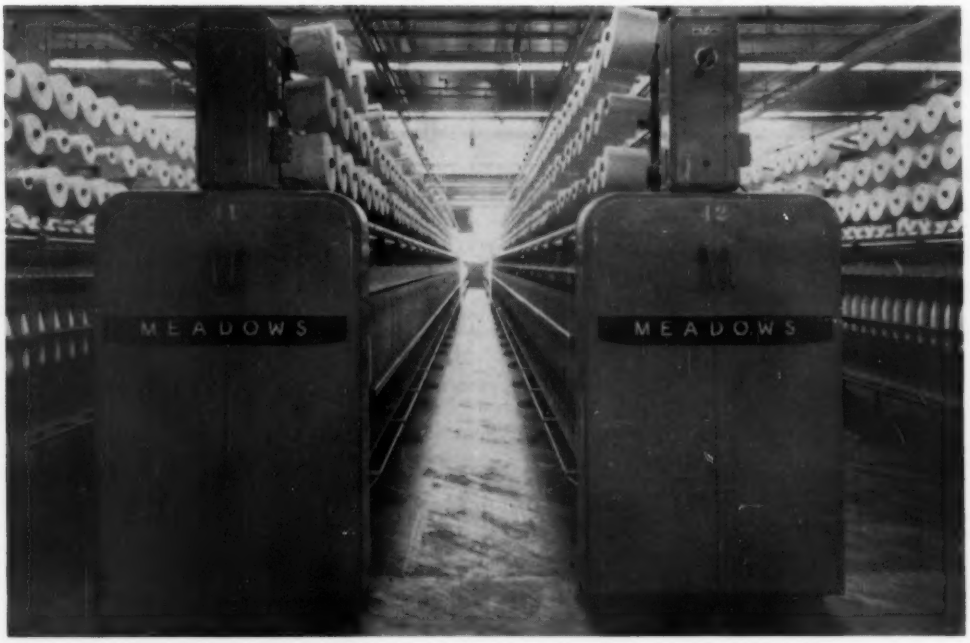

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